Department of Pathology
Fellow & Resident Manual

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STATEMENT OF GOALS OF THE RESIDENCY PROGRAM AT SUNY UPSTATE MEDICAL UNIVERSITY

The program goal is to provide physicians with training and experience sufficient to prepare them for competent, independent practice in pathology and to provide an environment that fosters individual career aspirations within the discipline of pathology. Training consists of direct experience and responsibility in the management of clinical cases in a variety of settings and is supplemented and made more comprehensive by a planned curriculum of teaching conferences. Exposure to a broad range of experiences in Anatomic, Clinical and experimental pathology provide opportunity for residents to explore individual interests and serve as a foundation for a career in academic pathology or community practice. The success of the program depends on mutual respect between the faculty and the residents, as well as commitment by all to both the service and educational objectives.

The curriculum consists of a basic core of mandatory rotations in Anatomic and Clinical Pathology during the first three years and a year of elective time during the fourth year. The curriculum consists of alternating months of Anatomic Pathology (24) and Clinical Pathology (18), as well as 6 months of elective rotations (4th year).

LIST OF REQUIRED ROTATIONS

ANATOMIC PATHOLOGY	Duration in Months
Autopsy Pathology*	6
Cytopathology	2
Surgical Pathology**	16
TOTAL AP	**24**
CLINICAL PATHOLOGY	Duration in Months
Clinical Chemistry	1
Cytogenetics	1
Hematoppathology***	5
Immunology	1
Lab Managment/Informatics	1
Microbiology	2
Molecular Pathology	1
Special Hematology	1
Special Hematology/Chemistry	3
Transfusion Medicine	2
TOTAL CP	**18**

*Autopsy Pathology and Forensic Pathology are a single integrated rotation run by the Onondaga County Medical Examiner's Office (MEO), where residents perform forensic and medical autopsies under the supervision of the MEO staff . Autopsy cases at the Veterans Administration Medical Center (VAMC) are performed by the autopsy resident under the supervision of the VAMC staff pathologists.

**Surgical Pathology rotations will be characterized by increasing responsibility and decreasing need for supervision through the 4 years of residency. In senior years, it is expected that a resident who is successful in the program will take responsibility for directing interns and medical students on the service. At least 3 months of the surgical pathology will be done at Veterans Administrative Hospital. The surgical pathology rotation at University Hospital is the mainstay of training with exposure to a wide variety of challenging specimens in a tertiary academic environment. The rotation at VA Hospital provides residents with a community practice type of exposure that includes simultaneous coverage of surgical pathology, autopsies and the clinical laboratory. This rotation also provides the unique opportunity to perform bone marrow aspiration biopsies.

*** Residents rotate in 3 different services in Hematopathology: bone marrows (3 months), consultation service and flow cytometry (2 months), and special hematology (one month). In addtition, there are 3 additional months of Special Hematology combined with Clinical Chemistry.

List of Departmental Conferences

Name of Conference	Frequency	What subspecialty is included
Monday morning AP Conference	Weekly	Gross conference, MEO, Medical Autopsy and Cytology
CP Service Review	Weekly	All CP service labs
Clinical Pathology Conference I	Weekly	Transfusion Medicine, Hematopathology
Clinical Pathology Conference II	Weekly	Immunology, Microbiology, Chemistry, Cytogenetics and Molecular Pathology
Cytopathology Journal Club	Bimonthly	Exfoliative and Fine Needle Aspiration Cytology
Resident Journal Club	Biweekly	Topic depends on the supervising faculty subspecialty
Research Seminar/Grand Rounds	Monthly	Anatomic, Clinical, and Basic Research Pathology
Surgical Pathology Journal Club	Monthly	All surgical pathology subspecialties
AP Didactic	Weekly	Kidney, Lung, Neuropathology, Eye Pathology, Environmental, Gastrointestinal, GYN, Pediatric Path, Liver, Urology, Bone tumors, Breast, Head and Neck, Soft tissue, Endocrine, Salivary gland and Joint/Rheumatology
Surgical Pathology Unknown Slide	Weekly	All Surgical Pathology Subspecialties

Interdepartmental Conferences

Thyroid	Once a month	1st Tuesday	12:00 PM	Joslin Center	Dr. Khurana
Breast	Once a month	2nd Monday	4:00 PM	6th Fl Auditorium UH	Dr. El-Zammar
ENT	Weekly	Tuesday	5:00 PM	ROC	Dr. Mukhopadhyay
Gastrointestinal Pathology	Weekly	Friday	7:00 AM	6717 UH	Dr. Landas
Oncology-Hemepathology	Weekly	Thursday	10:00 AM	6717 UH	Dr. Hutchison
Oncology-Pathology	Weekly	Thursday	11:00 AM	6717 UH	Dr. de la Roza
Orthopedic/Oncology	Weekly	Monday	7:30 AM	Ortho conf rm UH 4400	Dr. de la Roza
Pediatric-Oncology	Monthly	Thursday	4:00 PM	Peds conference rm	Dr. Zhang
Transfusion Com.	Quarterly	Thursday	3:00 PM	CP conf rm UH	Dr. Rosales
Combined Toxicology Rounds	Alternate monthly	Thursday	1:30 – 3:30 PM	ME's Office	Dr. Philip

Scholarly Activity

The residents are exposed and encouraged to participate in our academic environment through teaching and research. Every resident will be required to get involved in some form of scholarly activity within the department. Residents will prepare presentations for the journal club and educational conferences on a rotating basis. There are many opportunities for residents to be involved in research. Residents are not only encouraged to participate in ongoing research with faculty members, but also to explore ideas that may result in research projects and publications. This is considered a valuable learning experience and an important part of the residency program, regardless of the eventual practice setting for the individual resident. The academic work may also include development or improvement of clinical diagnostic methods and reviews of existing literature. This manual contains a section with details on the research and clinical interests of each faculty member.

Evaluation of Residents

From the onset, the residents should identify strongly with the patient problems assigned, contribute to the extent that they are able and make appropriate corrections in their deficiencies. All of the programs will provide ample learning opportunities but consolidation and extension of the experience is the responsibility of the resident through intensive use of textbooks and, where appropriate, the extended medical literature. Evidence of continuing growth and maturation will be met with increasing independence and responsibility.

Residents are evaluated in writing by the faculty involved in each rotation**. These evaluations are based on the six areas of competency defined by the ACGME: patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism, and system-based practice (See Appendix page 113 for definitions). A summary evaluation based on these written evaluations and discussion with the faculty will be made by the program director twice a year. This summary evaluation will then be discussed with the resident by the program director. At this time, there will be an opportunity for clarification of issues, which have arisen and planning for the residents' future. The result of this meeting will be a summary letter from the program director to the resident outlining the consensus evaluation by the faculty and the result of the discussion with the resident. The resident will be given the option of writing a response and will be asked to sign the letter as acknowledgment of its appropriateness.

These evaluations are used to determine progress and growth of competence of the resident in pathology and will be used in decisions about promotion and retention from year to year, assignment of advanced status (such as selection of chief residents) and appropriateness of recommendations to sit for the ABP exam.

Supervision
All cases to be signed out by residents in all laboratories will have an assigned attending physician, based on a distributed monthly schedule, who is responsible for the diagnosis. Individual residents may expect increasing levels of responsibility in the work-up and management of cases as they progress through their training. The level of responsibility given to a resident is at the discretion of the designated attending. At no time, however, will a resident function without clear and readily available 24-hour immediate attending supervision.

Evaluation of the Program
Residents should also submit formal written evaluations of the program (twice per year) and individual faculty members at the end of each rotation**. Residents also have the opportunity to address issues in confidence with the program director at any time, but especially at the semi-annual meetings. The program director assesses issues brought to his attention and may present them to the Residency Advisory Committee and Department Chair, when appropriate.

** All evaluations are done electronically using the E-value internet-based system.

ADMINISTRATIVE ISSUES

BOOK AND TRAVEL ALLOWANCE FOR PATHOLOGY HOUSESTAFF
$500 educational fund each year, with $150 bonus *after* PGY-1 year (money becomes available July 1st of PGY-2 year) for conference attendance **greater** than 85%. Effective July 1, 2009 conference attendance bonus has been discontinued. No monies are carried over from year to year.

When you want to order books, purchase them and then provide the Residency Coordinator (2306 WHA) with the original receipt, packing slip and credit card statement reflecting the charge.

Travel funds are available to housestaff only after his/her first year in the program. Carry over of travel money to subsequent years is not permitted. Travel will be reimbursed based only on original receipts submitted. No "per diem" reimbursement is allowed

The Department of Pathology will pay for only one (1) meeting per year, even if the resident/fellow has more than one first authored paper.

Travel-related expenses will be covered for each day of presentation and 2 additional days, one of which is for transportation. Any additional expenses will be the responsibility of the resident/fellow.

BEEPERS

The department will provide a beeper for each house officer for the duration of their training experience. If a house officer loses this beeper, he/she will be financially responsible for its replacement.

LAB COATS

The department will provide three white laboratory coats per house officer (laundry service provided).

MEETINGS

Leave for attending scientific meetings or subspecialty conferences or training (not generalized Board-review type courses), including travel time (one half day prior to and one half day following presentation or meeting), will be treated as business leave (indicated on your time sheet as "BL"), not to exceed five (5) working days per year (including presentations at meetings). As in the case for vacations, it is necessary for the resident/fellow to secure appropriate prior approvals from the supervisor of the rotation and the program director, and arrange coverage.

Attendance at non-approved meetings such as Board-review type courses and time spent for job interviewing must be considered as vacation time. The actual sitting for Board or licensing examinations including reasonable travel time can be considered business leave, not to exceed five (5) days per academic year **(maximum of 5 days for ABP Boards and 3 days for USLME part 3)**.

Please make sure to check with the Program Coordinator before registering for any conference to ensure that the funds are available. The Program Director must sign off all travel requests.

AP RESIDENT ON-CALL RESPONSIBILITIES

The Anatomic Pathology (AP) services at University Hospital and Veteran's Administration Medical Center must be covered 24 a day and 7 days of the week. Night, weekend and holidays call includes surgical pathology, frozen sections and autopsies. Night coverage begins at 5:00 p.m. each night. Residents are expected to perform autopsies and frozen sections under the supervision of an attending pathologist.

The resident is often the first person contacted by clinicians requesting rush processing on a specimen. Any request for rush processing must be approved by an attending. Be sure to get the name and beeper of clinician to be called with the results.

If you are called for a frozen section, find out the OR room number and surgeon's name, and then call the attending on-call (try the home number first and then the beeper or cell phone). If it is a Neuropathology frozen section (i.e., a frozen section by a neurosurgeon or other surgeon requesting Neuropathology) you should contact the Neuropathologist on call (both numbers are on the AP call schedule). In addition, residents may be asked to come in during off-hours to take care of specimens that require prompt routing or special handling. This may include lymph node protocols, fixing tissue for immunofluorescence, and determination of cellularity and adequacy of FNA specimens. It is expected that after a short time on service, residents will be able to perform these tasks independently after getting the approval of the attending on-call.

Lymph node protocol

Lymph node protocols should be performed according to the procedure outlined in the gross room manual (i.e., touch imprints, B-5 and formalin fixed sections, EM, snap frozen tissue, and RPMI for flow cytometry. Touch imprints and B-5 fixed sections are the most important for diagnosis if there is not enough tissue). B-5 solution should be made fresh by mixing 9 parts of B-5 stock solution and 1 part of concentrated (37%) formaldehyde, available in the gross room. Glutaraldehyde for EM is available in the gross room refrigerator in the accessioning area. Tissue for flow cytometry (lymphocyte typing) needs to be stored for processing by the technologists on the next regular workday. Solid tissue should be stored in culture media (RPMI 1640) which is available in the refrigerator in WHA 1315, and then stored in the refrigerator. Snap frozen tissue is to be stored in a sealed plastic envelope or other leakproof container, with a label with the patient's name inside the container. The container itself is to be stored at -70ºC. Remember, if cultures are indicated (by clinical history), handle the lymph node with sterile gloves and instruments and separate the piece for culture first. This is often best done by the surgeon in the OR while the specimen is still in a sterile field. The piece for culture with appropriate requisition forms should be taken to the specimen processing area in CP.

Fluids for Lymphocyte Typing (pericardial or pleural effusions, etc.) should be spun down to a pellet and then gently resuspended in culture media, after which they can be stored at room temperature.

REMEMBER TO LABEL ALL CONTAINERS AND TUBES WITH THE PATIENT'S NAME AND HOSPITAL NUMBER - If problems arise, you can contact Donna in Dr. Hutchison's laboratory

Immunofluorescence

Tissue for which immunofluorescence has been requested must be received fresh, on saline-soaked gauze. During off-hours, the specimen should be bisected, with half-fixed in formalin and half in Michel's solution (available in the OR and Histology). Do not put Michel's fixative in the refrigerator. If a frozen section has been made, the surface of the frozen block can be covered in OCT to prevent drying, and the block and chuck stored at -70°C for later use in immunofluorescence.

Kidney Biopsies

You may be asked to submit a kidney biopsy for processing. Kidney biopsies are treated differently than other tissues. Get the patient's name, the physician's name and beeper number, and then call Dr. Shanley (beeper 441-4012) and Kathy Sayles (beeper 467-7587) for specific instructions (i.e. taking tissue for EM).

All kidney biopsies are fixed in Zamboni's solution for LM & EM and in Michel's (Zeus) fluid for IF. These are available in Histology and in the OR. If you cannot reach Dr. Shanley or Sayles, leave the biopsy in Zamboni's and Michel's and it can be rush processed the next business day.

Cytopathology

Cytopathology laboratory hours are 0800 to 1700, Monday through Friday. For specimen collection procedures, Health care providers may be referred to the Cytopathology Clinical Reference Manual.

You need to schedule an appointment to come into the Cytopathology Laboratory to **review the preparation procedures prior to assuming on-call responsibilities**. Any stat request for Cytopathology testing after laboratory hours should be communicated to the AP attending on call to verify the necessity and to determine what accommodations are needed. Stat requests most

frequently involve cerebrospinal fluid (CSF), bronchoalveolar lavage (BAL) and fine needle aspiration specimens. CSF cytospins can be prepared in CP at the Chemistry laboratory. CSF stat requests are prepared by the Anatomic Pathology resident on-call who will consult with either the Clinical Pathology Attending on call when there is a question of hematopoietic malignancy or the Anatomic Pathology Attending on call for all other diagnoses.

The Cytopathology Laboratory manual is located in the Cytopreparation room 2141A. Refer to the procedures and operating instructions prior to performing any procedure.

All cerebrospinal fluid specimens for Cytopathology, whether inpatient or outpatient, **MUST BE BROUGHT DIRECTLY TO THE CYTOPATHOLOGY LABORATORY AND REFRIGERATED**. If it is absolutely necessary to obtain a cerebrospinal fluid for an immediate evaluation during off hours, the specimen is to be prepared by the **Clinical Pathology resident on-call** who will consult with the Hematopathology attending, when appropriate (leukemia, lymphoma). The diagnosis that is communicated to the physician requesting the rush diagnosis should also be written in the blank area of the Cytopathology requisition. The person to whom the results were given, the name of the physician(s) who rendered the diagnosis, as well as the date and time also need to be recorded on the Cytopathology requisition. The slides are to be left in the Cytopathology Laboratory (2141 WH) with the completed requisition on the multi-headed microscope table.

STAT requests for GMS stains of bronchoalveolar lavage (BAL) fluids for detection of Pneumocystic carinii are the responsibility of the AP resident and attending on call. Be sure to familiarize yourself with the proper procedure before going on call. STAT requests for immunofluorescent stains are handled through Clinical Pathology (see Microbiology/Virology section of the CP RESIDENT'S ON-CALL RESPONSIBILITY section).

If there is a request to perform a fine needle aspiration or provide a diagnosis on a fine needle aspirate after laboratory hours, the Anatomic resident will consult with the Anatomic attending pathologist.

All fluids for cytopathology should be stored in the refrigerator for routine processing on the next regular work day. STAT requests for Cytopathology are not accepted unless approved by the attending on-call.

CP RESIDENT ON-CALL RESPONSIBILITIES

General
Prepare Service Review Report.
Check technical staffing in each section.
Assess major equipment in each section and computer for malfunction.
Consult with on-call attending clinical pathologist as needed.
Be familiar with resident responsibilities as per disaster plan, which is located in the Pathology Safety Manual.

Chemistry
Review clinical history of all extraordinary toxicology requests and communicate with the clinician as needed.
Review requests for tests for appropriateness of medical necessity.
Review requests for special STAT chemistry tests.

Cytogenetics
Routine Cytogenetics services are not offered after normal laboratory hours (0800 to 1700, Monday through Friday). The Cytogenetics Laboratory is staffed Saturday 0800 to 1630. On-call

service is available after hours or weekends - see the on-call list posted at the Clinical Pathology Front Desk or in the AP/CP residents' rooms.

For all specimens received after hours or on weekends, see the on-call list and contact the appropriate Cytogenetics Laboratory personnel.

Requests for stat testing should be reviewed with on-call cytogenetics personnel or the Cytogenetics Laboratory director before agreeing to perform the service.

If there are any questions regarding appropriate specimen handling or disposition, contact the appropriate staff member as indicated on the on-call list.

Hematology

Check with technologist in charge of Hematology, review abnormal blood films by 1000 on weekends or holidays, as requested, and sign CBC slips. Consult with hematology fellow (or attending) on call, as necessary, and notify clinicians of any important new findings.

Follow through on abnormal coagulation studies brought to your attention, insuring that appropriate definitive studies are performed and reported.

Perform blood and bone marrow Wright-Giemsa and peroxidase stains when necessary.

Transport fixed bone marrow biopsy and clot section specimens to the Histology Laboratory in Anatomic Pathology. Bone marrow biopsy and aspirate clot sections are fixed in freshly prepared B-5 fixative (9 parts B-5 stock solution and 1 part 37% formaldehyde, available in the bone marrow processing area) for 2 hours and then transferred to 70% ethanol (available in the bone marrow processing area).

DO NOT allow specimens to fix for more than 2 hours in B-5. The technologists in the core lab or the processing area can assist by transferring the specimens from B-5 to 70% ethanol after 2 hours. The fixed specimens in 70% ethanol are then decalcified and processed by the Histology Laboratory.

The processing of lymph node biopsies is the responsibility of the AP resident on-call (see page 46).

Immunology/Flow Cytometry/Electron Microscopy

Perform cryptococcal antigen test when necessary. The processing of tissue for immunofluorescence is the responsibility of the AP resident on-call.

Specimens for flow cytometry should be kept at room temperature in Heparin tube or diluted in RPMI + 10% FCS. If a stat specimen (i.e. acute leukemia) requires immediate attention, notify the immunology technologist on call after consulting the attending on call.

LIS

Computer staff will notify on-call resident of any downtime and an estimate of when the system will be up.

If downtime is of an extended period, implement computer disaster plan.

Notify units of downtime if reporting systems are affected.

Microbiology/Virology

Approve and read "STAT" acid fast stains.

Notify physicians of positive blood and spinal fluid cultures if the laboratory staff cannot locate the physician, and notify physicians of positive acid fast results.

Insure optimal collection and plating of unusual cultures, i.e. lung aspirates, brain abscess, lung abscesses, etc.

STAT requests that must be approved by either Pediatric or Adult Infectious Disease attendings (depending on the age of the patient):

Influenza A antigen
RSV antigen
Legionella DFA
Pneumocystis DFA

Residents are expected to perform STAT RSV and Influenza antigen tests after hours, i.e. after 4:00 p.m. on weekdays, after 2:30 p.m. on weekends.
All other STAT requests must be approved in conjunction with Drs. Forbes or Kiska. If they are not available, involve the Infectious Disease attending on-call.

If the STAT tests are approved, notify Virology personnel by use of the re-call list posted in Microbiology.

Note: Under certain circumstances, you may be expected to process specimens and perform cell culture inoculation for viruses with the aid of Virology personnel via phone.

Note: If STAT requests are made by Pediatric or Adult Infectious Disease attendings, no further approval is required.

Molecular Pathology
Routine Molecular Pathology Laboratory services are not offered after normal laboratory hours (0800 to 1700, Monday through Friday).

Specimen requirements: Adults and children - 10 mL EDTA; infants, 1-2 mL EDTA (pediatric tube). Store at room temperature; receipt Monday through Friday, within 24 hours of collection.

Refer to the Molecular Pathology procedure manual located in the main lab (Rm. 3814) for more specific details (i.e., for gene rearrangement assay, see section 200.4). Part Two of the Molecular Pathology procedure manual contains procedures for each test that is currently offered clinically. Each procedure has a subsection titled "specimen (sample) collection and transport" which details sample requirements and handling.

Any requests for STAT testing should be reviewed with the director (Dr. Antony E. Shrimpton) or the technical supervisor (Celeste Lamberson).

Transfusion Medicine
Review requests for:

Fresh frozen plasma: more than 4 units per patient or any volume in a patient with normal coagulation studies.

Platelets: single donor units, MLA pheresis products. All platelet requests, especially those exceeding 6 units should be reviewed to determine if appropriate.

Leukocyte reduced packed red cells, washed red cells, frozen red cells, requests for irradiated blood.

Contact ordering physician if blood component order form does not have an appropriate indication noted. Consult with attending if necessary on unusual circumstances. Record changes in orders and rationale for unusual orders on blood component order form. If an order is not changed and seems inappropriate, bring information to supervisor's attention for review by Blood Utilization Review Committee. Follow-up cases for who orders were canceled. Note any adverse outcomes that may have resulted from use of the guidelines.

Follow-up transfusion reactions by ascertaining present status of patient, necessary emergency therapy, if any, desired follow-up laboratory assessment and future blood requirements by clinicians with a verbal preliminary report to clinicians. Any hemolytic transfusion reaction requires your presence at the bedside immediately and to promptly telephone the attending clinical pathologist. Present written report to Transfusion Medicine attending within 24 hours (including weekends).

Check the Transfusion Medicine inventory and be aware of any blood shortages (especially O negative).

Be aware of antibody work-ups in progress and communicate antibody or crossmatch problems to the appropriate physicians.

Review blood orders for Monday surgery. Complete OR schedule and compare with "Guidelines for Ordering Blood for Elective Surgery".

If a request is made for an emergency therapeutic apheresis on the weekend, the resident is required to evaluate the request and make recommendations to attending apheresis physician in regard to treatment. The resident must be on site during the apheresis procedure.

CHANGE OF ADDRESS

The Department of Pathology and the Office of Graduate Medical Education must know your address and telephone number at all times. Give the Residency Coordinator your New York address and phone number as soon as you know it. If you move, notify the Residency Coordinator as soon as possible. When you complete your training, leave a forwarding address with the Residency Coordinator.

CODE 405 REGULATIONS

Code 405 - "The scheduled work week shall not exceed an average of eighty (80) hours per week over a four week period."

Summary of Requirements

- A limit of 80 hours for the scheduled workweek of residents averaged over a four-week period. On-call duty in the hospital for surgical residents is not included in the 80 hour limit when evidence of adequate rest time is available and the number of interruptions are infrequent.
- Assigned work periods should not exceed 24 consecutive hours. The on-call duty of surgical Residents in-hospital is not included in the 24-hour limit with evidence that rest time is adequate and interruptions infrequent.
- For hospital emergency departments with more than 15,000 unscheduled visits per year, the on-duty assignment of residents should not exceed 12 consecutive hours.
- Dual employment or "moonlighting" by residents must be monitored by hospitals and any

such hours worked must be considered as part of the working hour limitations.
- Non-working period following scheduled on-duty or on-call periods, and one 24 hours period of scheduled non-working time per week must be provided.
- Onsite, 24 hours per day, seven days per week, supervision of residents by physicians in
- their respective specialties is required.
- Direct in-person supervision by an attending surgeon is required for all surgical procedures involving general anesthesia.

In addition to adhering to the schedules that have been made up to accommodate these rules, you are to contact your supervisor and/or your attending whenever you feel tired. It is the responsibility of your direct supervisor and/or you attending to allow you to go home with no penalty or negative rating or other consequence on your residency record.

If you find that you are not provided with relief at these times nor have reprisals taken against you, you should bring these issues to the direct attention of either the Department Chair or the Residency Program Director.

CONFERENCES

Attendance at weekly conferences is mandatory. Each resident/fellow is required to attend **at least 80%** of the conferences. A low attendance will be cause for concern. Conference attendance will become part of your bi-annual evaluation with the program director.

It is your responsibility to inform the Chief Resident if there is an instance where you miss a conference due to a conflict.

DRESS GUIDELINES

Purpose:

To establish minimal acceptable standards of dress for SUNY Upstate Medical University Department of Pathology Residents and Fellows.

Policy:

1. No sweat suits, shorts, athletic wear or non-approved lab jackets/scrub suits may be worn.
2. Jeans may not be worn.
3. Shoes are to be neat and clean. Tennis/athletic shoes are not permitted. Open toed shoes may not be worn in patient care areas.
4. Dress and personal hygiene, which are considered in poor taste or disruptive, may be addressed by Program Director or supervising faculty.

FACULTY EVALUATIONS

After each rotation, the resident is asked to complete a brief evaluation form for review by the Program Director. **Training credit for the rotation is contingent upon completion of this form.**

KEYS

- Keys to the Anatomic Pathology and Clinical Pathology floors and to the OR can be obtained through the residency coordinator's office (2306 WSK).
- Keys must be returned to the coordinator's office upon the completion of your residency. No certificate will be issued until they are returned.

LEAVE

Family Leave

- The Family and Medical Leave Act (FMLA) gives eligible employees the right to take unpaid leave, or paid leave charged to appropriate leave credits under certain circumstances, for a period of up to 12 workweeks in a 12-month period (calendar year for State employees). Eligible employees are those who
    1) have completed one year of service **and**
    2) have worked, or otherwise were in paid status, for a minimum of 1,250 hours during the 12-month period immediately preceding departure on leave.
- Under certain conditions, FMLA leave may be taken on an intermittent basis. Employees are also entitled to continuation of health and certain other insurances, provided the employee pays his or her share of the premium during this period of leave.
- If an employee desires to take FMLA leave, but the Health Science Center Office of Human Resources is not made aware of the reason, the employee must notify his/her supervisor of the reason for the leave no later than two business days of returning to work. Absence of such timely notification, she cannot assert FMLA protection for absence.
- Leave is available for the following circumstances:
    - Placement of a child in the resident's home for adoption or foster care.
    - Birth of a child to the resident or the resident's spouse.
    - The need to care for a family member with a serious health condition.
    - The resident's own serious health problem.
- Residents with scheduled family leave should contact the Office of Graduate Medical Education and hospital personnel offices concerning maintaining their health care coverage while on leave without pay.
- Questions regarding the application and interpretation of the leave policy should be directed to the Benefits Office in Jacobsen Hall.

Maternity

- Maternity leave results in the least dislocation when planned promptly. Early consultation with the director of the Residency Training Program is very important.
- Some rotations present fetal risk. Pregnant residents should contact their program director promptly regarding such risk. Pregnancy is considered a short-term disability.
- Maternity leave can consist of vacation, sick leave, or leave without pay in any combination. Additional information can be obtained from the Personnel Benefits Office.

Sick Leave

- All full and part-time faculty and professional staff employees earn sick leave credits on the same basis as vacation credits, and may accumulate up to a maximum of 200 sick leave days.
- A Sick Leave Exchange Program will be available to full-time UUP-represented employees during the term of the negotiated agreement between the State and the UUP.
    - Eligible employees may elect once a year to reduce their sick leave accrual rate change for a credit to be applied against the cost of the New York State Health Insurance Program (NYSHIP) premiums.

- In order to participate, you must:
    - Be a member of the SUNY Professional Services Negotiating Unit;
    - Be employed on a full-time basis;
    - Be eligible to earn sick leave credits;
    - Be on the payroll for some portion of the election period;
    - Be covered under NYSHIP; and
    - Have a sick leave balance of 15 days or more at the time of the election
- Participation in the Program automatically ceases at the end of each calendar year covered

by the agreement and employees return to earning their sick leave at their normal rate and resume payment of the normal employee share of the NYSHIP health insurance premium unless they file a new election to participate for the next calendar year.

- If you are sick, notify one of the chief residents and the residency coordinator. The chief resident with whom you speak will let you know if anyone else needs to be notified.

Vacation

- The present contract provides for 15 working days of vacation for the first year of service at SUNY Upstate, (16 for the second year; 18 for the third, fourth and fifth years; 20 for the sixth year), and increasing to a total of 21 days per year for the seventh year and beyond.
- Vacation may be scheduled in advance of actual accrual as necessary to provide for a smooth flow of scheduling of resident assignments throughout the year.
- All requests for vacation and or travel arrangements are to be submitted by completion of the proper request form **no less than one week** in advance of the requested date of departure. In order to assure adequate service coverage, these requests should first be cleared through the Program Director's Office. Each resident requesting vacation must arrange their own service coverage. Leave for vacation and/or business is not ordinarily permitted for a period of time exceeding two full calendar weeks. Only one week of vacation per rotation is allowed, except for elective time (e.g. for a two-week vacation, one week should be taken for the last week of one rotation and another one from the first week of the following rotation). All vacation requests need the approval of the chief resident, attending(s) on service for that rotation(s), and the program and division directors. Approval is not automatic, and depends on staffing, schedules, service responsibilities, etc.
- When two residents have been assigned to a rotation, only one may be on vacation at any time.
- ***The institution asks that vacation time be used during the year in which it is earned and not carried over for accrual in the following year.***
- New residents and residents continuing in the program are not to schedule vacation during the last three weeks of June or first weeks of July.
- ***Residents who are leaving the program may reserve and schedule a maximum of one week of vacation time at the end of their residency training program.***
- All request forms must be submitted to the appropriate timekeeper for recording of accruals and time taken off for vacation and sick leave.
- Residents are expected to be judicious in the timing of vacation, with primary concern for patient care, as well as consideration towards their colleagues, both resident and faculty.
- If you are scheduled at the VA or the ME's office and it is a legal holiday for that facility (i.e., Presidents' Day), but NOT for SUNY, you may take the day as vacation or holiday comp. Or if you do not wish to charge your accruals, you may report to AP and spend the day reading.

LONG DISTANCE TELEPHONE POLICY

Upstate employees are assigned a 6-digit authorization code for long distance access. Please do not allow other personnel to use your authorization code. To place a long distance call, enter:

6 digit authorization code - # - 9 - Area Code - Number

- Only business long distance calls should be placed from telephones in Upstate Medical University. You will be asked to confirm that calls identified by your authorization code are business related.
- See Upstate Telephone Directory Resource Guide for personal long distance dialing instructions.
- Problems with telephones should be reported to the hospital operator - "O".

MAILBOXES

Every pathology resident and fellow has a mailbox: in Room 6803 UH. All correspondence with department members will be through your mailbox in the department. Most housestaff members choose to use the departmental mailbox for delivery of journals, etc. You should check and **empty** your mailbox frequently.

MOONLIGHTING

- Upstate Medical University philosophically opposes involvement in extra-curricular professional activities (moonlighting) during graduate medical education training.
- Such activities are permitted only with the express written permission of the department chair.
- A resident's annual agreement may not be renewed if, in the opinion of the department, such activities are interfering with my duties and educational progress.

PAGERS

- You will be assigned a pager within a few days of your arrival. You will keep that pager throughout your training.
- As with keys, your pager must be returned before you leave, or your certificate will not be issued.
- If you lose your pager, report it to the residency program coordinator (2306 WSK) immediately
- There is a supply of batteries for the pagers in the AP front office .

PROMOTION, PROBATION AND DISMISSAL

Policies and procedures regarding academic promotion, probation, and dismissal are printed in the *Housestaff Handbook* published by the Office of Graduate Medical Education (Room 1814 UH) as well as in the front of the Residency Manual.

RESIDENCY COORDINATOR

The residency coordinator, Sue Phillips, is located in Weiskotten Hall, Room 2306. Her office phone number is 44670.

RESIDENT EVALUATIONS

- After each rotation.
- A summary evaluation of each resident will be issued for record twice a year. Residents are encouraged to discuss with each faculty frequently.

ROTATION EVALUATIONS

After each rotation, the resident is asked to complete a brief evaluation form for review by the Program Director. **Training credit for the rotation is contingent upon completion of this form.**

SUPERVISION POLICY

All cases to be signed out by residents in all laboratories will have an assigned attending physician, based on a distributed monthly schedule, who is responsible for the diagnosis. Individual residents may expect increasing levels of responsibility in the work-up and management of cases as they progress through their training. The level of responsibility given to a resident is at the discretion of the designated attending. At no time, however, will a resident function without clear and readily available 24-hour immediate attending supervision. (1/15/08)

USMLE STEP III EXAM

The Department of Pathology and Residency Program requires all residents, effective July 1, 2008 forward, that Step II must be passed **prior** to June30th of the PGY-2 year of training. If not, said

resident will not be promoted to the final level based upon the institutional USMLE Step III Policy. If resident does not pass USMLE Step III, the terms of resident appointment will be null and void and the resident may be continued at the same level, or the resident's continuation in the program may be in jeopardy. (1/15/08)

OUTSIDE ELECTIVE POLICY

All electives outside institutions affiliated with SUNY Upstate Medical University must first be presented to the Program Director for approval. Both the Chair of Pathology and the Dean of the Medical School must then approve it, and then approval MUST be obtained by the Graduate Medical Education office before an outside elective will be granted.

Six (6) months advance notice is required to provide the Graduate Medical Education office sufficient time to ensure affiliation agreements/contracts are in place.

It is required that the resident demonstrate justification for such elective. This justification must include the following:

1. Name of Institution and Program Director (with address and phone number)
2. Name and length of elective rotation and name of Direct Supervisor
3. Specific responsibilities/duties and range of clinical activities of the resident during the rotation
4. Statement regarding ACGME program accreditation
5. Statement regarding malpractice liability and disability insurance coverage for resident while on elective rotation at outside facility
6. Explanation why you feel this elective should be approved (What will you get out of this rotation)

NOTE: IF APPROVED

Resident will stay on SUNY payroll (with vacation/sick leave and health insurance benefits). Malpractice insurance through SUNY ordinarily will **NOT** cover the resident while on rotation at the outside hospital. Outside institution needs to provide malpractice liability and disability coverage. We will need assurance from the outside hospital that they will provide an evaluation on the resident's performance for this elective rotation. The resident **may** require health clearance and proof of appropriate credentialing prior to being accepted for elective rotation. This is the resident's responsibility. There is no institutional provision for payment of housing/meal expenses for the resident while on elective rotation. Graduate Medical Education Office needs a copy of the correspondence for their records.

RESPONSIBILITIES OF THE CHIEF RESIDENTS IN ANATOMIC/CLINICAL PATHOLOGY

- Prepare the rotation schedule.
- Ensure smooth operation of departmental conferences.
- Direct supervision during credentialing of new residents.
- Coordinate and pre-approve residents' vacation and business leave for subsequent approval by clinical service and residency program directors.
- Facilitate the relationship between residents and faculty to maximize learning and service efficiency.
- Determine from each resident during each rotation whether problems exist.
- Help in the organization of the annual orientation of new residents to AP and CP, and direct the tour of the department.
- Attend Residency Review Committee meetings and other departmental administrative meetings, as required.

ANATOMIC PATHOLOGY ROTATIONS

GENERAL GOALS IN ANATOMIC PATHOLOGY

The following are goals for Anatomic Pathology training for all residents. They are flexible and certainly should not be considered final. Nonetheless, the context of these goals is defined by the time and resource constraints of pathology practice and by the fundamental principle that our efforts must always serve the patient.

1. Learn to use gross inspection, routine histology, cytopathology and special investigations to formulate differential diagnoses, arrive at diagnoses, and solve clinical problems.
2. Learn to communicate your findings and conclusions clearly, in a manner useful to all appropriate audiences, especially clinicians. Skill in both oral and written communication is critical.
3. Learn to constantly update and expand your knowledge of facts, terminology, and classifications of disease. Clinical correlations are often key to meaningful diagnosis, problem solving, prognostication and thus effective pathology consultation. Furthermore, understanding limits of knowledge is essential to obtaining assistance in difficult situations.
4. Maintain enthusiasm for continued learning. Nurture your familiarity with bibliographic resources. Learn how to critically evaluate literature. Recognize and apply self-motivation in your work. Prepare yourself for assumption of major responsibility.
5. Explore the possibility of being involved in a research project with a faculty member and/or other residents.

AUTOPSY ROTATION

Length of Rotation: 5 months required

Teaching Staff:
Robert Stoppacher, MD, Director, Autopsy Service
Abraham Philip, MD

The autopsy rotations allow for study of autopsy pathology, forensic pathology, pediatric pathology, and basic gross and microscopic anatomy and pathology. The majority of autopsies are performed at the Onondaga County Medical Examiner's Office (MEO), where both MEO and SUNY Hospital autopsy examinations are performed. Additional autopsy experience is through the VA hospital and Crouse Hospital (pediatric).

SUNY hospital autopsies provide medical service to the physicians who refer their patients to us, as well as to members of the patient's family. It is also an educational component of the Medical Center, providing opportunities for learning not only to you, but also to other medical and paramedical students, pathology faculty and staff physicians and residents from all specialties. Furthermore it provides an indispensable quality improvement function to the institution and to the practice of medicine as a whole.

The SUNY and MEO autopsy services are under the direction of Dr. Robert Stoppacher with the assistance of neuropathologist Dr. Robert Corona. The Veterans Administration (VA) Hospital autopsy service is under the direction of Dr. Margaret Kowalski. Attending pathologists are involved in the services on rotation.

NOTE: Different procedures may be in place at other hospitals where you might perform autopsies. A detailed booklet from the MEO is provided to each resident during orientation.

Neuropathology (except for neurosurgical specimens, which are part of surgical pathology rotation at University Hospital) is also integrated into the autopsy rotation under the supervision of Dr. Robert Corona. On Thursdays, the entire morning from 8 AM to 12 PM is dedicated to neuropathology. Residents at the MEO are exempt from all other clinical service activities. This aspect of the rotation is as follows:

Brain Cutting Sessions: All residents rotating in Anatomic Pathology attend brain cutting sessions every Thursday at 8 AM at the Gross Anatomy Lab in College of Medicine Weiskotten Hall.

Sign-out of brain cases: Residents on the Autopsy service will sign out with Dr. Corona at the multi-headed microscope outside of Dr. Corona's office in Surgical Pathology at University Hospital. All cases for which microscopic slides are reviewed by this resident and presented to the attending NP staff will be signed out prior to leaving the service; cases for which slides are not received prior to the resident going off the service will become the responsibility of the resident on service for the following month. The resident(s) assigned to "MEO / autopsy service" will be responsible for cutting and gross workup of all brains that come through while they are on that service (regardless of source) as well as the microscopic interpretation and final diagnosis of brain case slides that are reviewed with the NP attending staff through their last day of MEO / autopsy service. Cases that were cut but for which slides were not yet available prior to the resident leaving the MEO / autopsy service would become the responsibility of the next resident to join that service.

GOALS

The goal of the autopsy rotation at the Medical Examiner's Office is to develop competent pathologists who can perform a complete autopsy procedure independently and has a basic skill set to understand the pathology observed in the context of the circumstances of death and the clinical history. This competency includes dissection, retrieval of specimens for specialized testing, gross and microscopic analysis, and determination of cause and manner of death.

OBJECTIVES

1. Review medical and investigative records to understand the circumstances surrounding a death including recognizing the relevant clinical concerns and questions to be answered by the autopsy.
2. Be able to perform a complete autopsy using both the Virchow and Rokitansky methods of prosection including head, neck, chest, abdominal, and pelvic dissections with emphasis on appropriate cutaneous incisions, and safe and through dissection techniques.
3. Apply observation skills and knowledge of normal weights and measures to assess presence of gross pathology at the time of autopsy examination and describe orally and in writing the disease processes discovered.
4. Document the external and internal physical findings on a body diagram and transfer this information in written format to prepare a professional autopsy report.
5. Obtain specimens of body fluid or tissue using appropriate methodology for various serologic, metabolic, chemical, microbiologic, toxicologic, and subspecialty pathologic (e.g. neuropathology) testing.
6. Analyze post mortem histologic sections and recognize normal versus pathologic processes seen at the microscopic level.

7. Develop Preliminary Autopsy Diagnoses and Final Autopsy Diagnoses in logical format with emphasis on clinical-pathologic correlation.

DUTIES AND RESPONSIBILITIES

1. Attend morning briefing meeting at the MEO at 9:00 AM daily.
2. Review MEO case file or SUNY medical records PRIOR to performance of the autopsy.
3. Inform morgue technician of any specialized testing that needs to be completed at the time of the autopsy.
4. Write/draw a legible and detailed body diagram and description of autopsy findings. Include notations on cassette numbers and microscopic sections taken for histologic examination.
5. Apply safe autopsy techniques including wearing personal protective equipment with N95 masks or heap-filtered respirator, observing universal precautions, immediately washing and reporting ANY body fluid exposure episode, following policy for post-exposure prophylaxis, and carefully handling chemicals.
6. Read the safety manual and MSDS booklets available in the morgue and evacuate the building at the issuance of a fire alarm.
7. Use photographic services to document pathologic findings.
8. Write up provisional anatomic diagnoses for each autopsy performed on the day of the autopsy. For SUNY cases, these must be entered into COPATH and signed by the attending within 24 hours. For MEO cases, these must be turned into the attending the same day.
9. Type up the autopsy report within 48 hours of the autopsy. A standard template is available to residents in the “Essentials” Folder on the computer.
10. Compare autopsy report to notes and diagram from autopsy for accuracy of information. Edit reports for typographical errors, spelling mistakes, grammar, and internal report consistency.
11. Retrieve slides and perform microscopic analysis and write up descriptions with diagnoses.
12. Write clinical summaries for neuropathology or any case where a large tissue specimen was saved for specialized pathologic examination (e.g. cardiac).
13. Keep a list of autopsies performed and turn into Gloria Holland weekly, Dr. Stoppacher monthly, and for yourself throughout your residency. This list will be required when you apply to take the certification examination by the American Board of Pathology.
14. Write up a clinical pathologic correlation for EVERY autopsy that you perform. For SUNY cases, this is a part of the medical record. For MEO cases, this must be submitted separately and is not a part of the permanent case file.
15. Prepare a short presentation at the end of each month during the last week of the rotation involving an interesting case for which you had primary responsibility.
16. Attend didactic lectures given monthly at the MEO.
17. ***Maintain respect and confidentiality for decedents.***

CURRICULUM

1. Mandatory orientation lectures (2 one hour sessions) in July covering
   A. Universal precautions, personal protective equipment, and post-exposure prophylaxis
   B. Morgue safety issues, chemical hazards, formalin spills & spill kits, MSDS sheets, safety manual, and showers and eye wash stations.

C. Fire alarms, evacuation procedure, and physical tour with walk through and egress.
D. Overview of autopsy reports, standard template, diagrams, physical external examination, organization of report, and mandatory PAD & CPC.
E. Review of case file material, access to MEO staff and physicians, resources including library, teaching slides, SUNY computer, and MEO network.
F. Confidentiality and respect for decedents.
G. Comprehensive review in addition to that mentioned above including
   i. Communicable disease and New York cancer registry reporting
   ii. Customer complaint
   iii. Head blocking and preparation of body for funeral director
   iv. Medical waste and sharps containers
   v. Neuropathology consultation, tissue retention and stock jars
   vi. Next of kin objection to autopsy and consent
   vii. Organ and tissue donation
   viii. Physician duty roster
   ix. Radiographic and toxicologic examinations
   x. Smoking
   xi. Tuberculosis

2. Two year series of one hour didactic lectures covering topics in forensic pathology -
   A. Basics including cause and manner of death and post mortem changes.
   B. Basics including a review of traumatic injuries
   C. Blunt force injuries
   D. Craniocerebral injuries
   E. Sharp force injuries
   F. Asphyxia
   G. Firearms
   H. Pediatric death investigation (2 hours)
   I. Motor vehicle accidents
   J. Fire and electrocutions
   K. Therapeutic complications
   L. DNA and toxicology
   M. Mass fatality incidents
   N. Death certification

3. Daily morning briefing meetings with pathologic discussions of differential diagnoses and conclusions from prior day's cases

EVALUATIONS

These are written by Dr. Stoppacher at end of rotation according to standard SUNY format. Residents are assessed on their ability to consistently follow the list of duties and responsibilities for the rotation. Most important is the assessment of the attending pathologist in determining the resident's ability to perform the autopsy based on their level of training and the resident's knowledge base in anatomic pathology. Accordingly, residents will be graded on how well they meet the deadlines for PAD, autopsy reports, and CPCs as well as their dissection skills, and expanding pathologic knowledge base. Preparedness will be judged by

questions posed on cases assigned to them and their retrieval of information regarding specific disease processes identified at autopsy. Interpersonal and communication skills will be critiqued by how effectively they present information at morning meetings, discuss individual cases with their attendings, interact with MEO staff, and follow up communication with clinicians. Failure to follow policies and procedures will result in a decreased grade.

CYTOPATHOLOGY

Length of rotation: 2-month mandatory rotation. Elective rotation in Cytopathology is also available.

Teaching Faculty:
Kamal K. Khurana, MD - Director
Gustavo de la Roza, MD
Ola El-Zammar, MD
Sanjay Mukhopadhyay, MD

Rotation Goals

The main goal of this rotation is to provide residents with the necessary tools to deal effectively with most cytopathology cases encountered in a general pathology practice. This rotation will also serve as a basic foundation for those interested in pursuing cytopathology as a subspecialty.

Rotation Objectives:

Acquire a base of knowledge, skills, experience and understanding of cytopathology.

1. Attain competency in practice of cytopathology through exposure to routine screening of gynecological specimens and processing, and interpreting cytologic material from various sites

2. Acquire skills, knowledge and understanding of the administrative and operational issues of a cytopathology laboratory, including policies and procedures, regulations, quality assurance, and quality improvement.

Resident would achieve these objectives by becoming familiar and competent in the following:

1. Screening of routine PAP smears, diagnosis and classification of abnormal PAP smears, systems of reporting (Bethesda and others).

2. Non-gyn specimens, including body fluids, brush cytology, fine needle aspirations, etc.

3. Collection and preparation of specimens for cytology evaluation including attendance in radiology suite to observe FNA's and attendance in cytology preparation room. In addition, residents will interact with surgery to perform FNA's in the clinic. The resident must document this experience in their file.

4. Preview and obtain a clinical history, previous material on all cases to be signed out by the pathologist. Be prepared to support and discuss diagnoses by appropriate research/reading.

5. Review study sets in both gyn and non-gyn materials (e.g. departmental, ASCP, Checkpath). Review unknowns with a supervisor.

6. Participation in quality control and quality assurance.

7. Administrative and management issues and subsequent activities pertaining to cytopathology lab.

8. The resident will develop the necessary skills to become competent in making clinical/pathologic correlation.

9. The resident will prepare for sign out with the attending pathologist by having analyzed the materials to the best of her/his ability and a diagnosis written on the requisition sheet. The resident should be prepared to discuss and support their diagnoses with supporting documentation from texts and the literature.

The requirements and expectations as well as opportunities will be reviewed with each resident during their first few days. Self-study is a significant component of the rotation and will be followed up by staff.

The University Hospital requires residents to be credentialed for fine needle aspiration biopsies (FNAB's). For residents, these have been set at 5 superficial FNABs. Obtaining these credentials by no means indicates expertise in this technique! A resident will be credited per case if they are actively involved and perform as directed; a resident will be credentialed after 5 documented cases and the approval of the Medical Director.

Two month rotation is mandatory. Elective rotation for additional months is also allowed. Greater than three month increments need prior approval of the Director of Cytopathology. Due to the fellowship program, only 1 resident position is available per month; exceptions must be cleared through the Director of Cytopathology. The amount of time allowed off service for vacation/comp time is dependent on the length of the rotation as indicated below. Consideration will be given to residents participating in meetings.

Curriculum:

Test performed:

Gynecological Cytopathology: Pap smears

Non-gynecological cytopathology: Body fluid cytology including Pleural fluid, Peritoneal fluid , CSF, synovial fluid, sputum, bronchial lavage and washings

Fine Needle Aspiration: Superficial FNA performed by pathologists and residents. Deep seated FNA performed by radiologist and clinicians. FNA performance (superficial only) Onsite evaluation, adequacy assessment and preliminary diagnosis are important component of FNA service.

Cytopathology Conferences: will be given at least 2-3 times per month. Attendance is required and participation is expected. Teleconferences, guest speakers and informal discussions are optional but encouraged. These will include didactic lectures as well as unknown cytology slide conferences given by cytopathology faculty and fellow.

Recommended Reading List

1. Comprehensive Cytopathology edited by Marluce Bibbo, MD

2. Practical Cytopathology edited by Robert W. Astarita, MD
3. Fine Needle Aspiration Cytology edited by Leopold Koss, MD
4. Fine Needle Aspiration of the Breast by Tilde Kline
5. The Art and Science of Cytopathology by Richard DeMay, MD

Duties and Responsibilities

Increment - 1 month

The resident will be responsible for attending daily sign-out and, after the first week, will be responsible for Previewing cases in graduated increments.

Residents may attend *for observation only* the weekly Cytopath FNAB Clinic in room 4800 University Hospital. Residents will spend at least two sessions in the preparatory area learning techniques.

There will be reading and study packets assigned by topic with follow up by staff. The first 1-month increment will emphasize gynecologic cytopathology.

Note: Vacation/comp days must be approved by the Director and will be limited to 2 days under normal circumstances.

Increment - 2 month

The resident will be responsible for attending daily sign out and, after the first week, will be responsible for previewing cases in graduated increments. The resident will then begin to work up non-gyn cases for sign out. Preparatory sessions (2) will be assigned during the first month.

The resident *may be given* the opportunity to learn the technique of FNAB. This may occur within the first month at the discretion of the Director; if not, then during the second month. If the resident performs adequately following instruction then he/she will be allowed to continue with interaction in the interventional services. The resident will also attend several radiologic guided procedures with the Cytopathology fellow or Cytotechnologists. If performance and progress is satisfactory then the resident will be allowed to perform independent of staff following residents being credentialed.

There will be reading and study packets assigned by topics will follow-up by staff. The emphasis will be mixed, both gyn and non-gyn throughout the two-month cycle. The resident will be expected to attend 2 cytopathology conferences presented by attending or fellow one every 3rd week.

Note: Vacation/comp days must be approved by the Director and will be limited to no more than 1 week (5 working days) under normal circumstances.

Increment - 3 month - *rotation can be tailored for senior residents with specific requests.*

The resident will be responsible for attending daily sign out and after the first week will be responsible for previewing cases in graduated increments, including the responsibility for writing up non-gyn (FNAB) cases.

The resident *may be given* the opportunity to learn the technique of FNAB. This may occur within the first month at the discretion of the Director; if not, then during the second month. If the resident performs adequately following instruction then he/she will be allowed to continue with

interaction in the interventional services. The resident will also attend several radiologic guided procedures with the Cytopathology fellow or Cytotechnologists. If performance and progress is satisfactory the resident will be given the opportunity *for independent assessment* of cases prior to final sign-out by the attending.

There will be reading and study packets assigned by topics will follow-up by staff. The emphasis will be mixed, both gyn and non-gyn throughout the three-month cycle. The resident will present 3 cytopathology conferences -they can choose topic and style.

Note: Vacation/comp days must be approved by the Director and will be limited to no more than 2 weeks (10 working days) under normal circumstances.

1st-4th year residents
If residents participate in primary screening of cytology cases, these cases will be rescreened by the cytopathology fellow, a cytotechnologist, or a pathologist prior to reporting.

Method of Evaluation
Residents must develop competencies in the six areas below to the level expected of a new practitioner.

Patient Care
Residents must demonstrate a satisfactory level of cytologic diagnostic competence and the ability to provide appropriate and effective consultation in the context of cytopathology services.

Medical Knowledge
Residents knowledge will be assessed based on his/her work-up of cases for sign out. Ability to establish clinicopathologic correlation based on cytologic diagnosis will be assessed. Participation in cytopathology conferences will be evaluated by program director and attending staff.

Practice-based learning and improvement
Resident must be able to perform literature search, collect appropriate background information and read text material pertaining to a cytology case that they are working up.

Interpersonal and communication skills
Will be assessed based on residents interaction with the attending staff, cytotechnology staff, peers and physicians from other departments. Ability to communicate cytologic diagnosis and to address the concern of attending physicians about individual cases will be assessed.

Professionalism
Residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

Systems based practice
Familiarization with system of Health Care and ability to call on system resources as needed to provide pathology services of optimal value will be assessed.

SURGICAL PATHOLOGY ROTATION at University

Length of Rotation: 9 months required over a period of 4 years of residency.

Teaching Staff:
Gustavo de la Roza, MD
Ola El-Zammar, MD

Gerald Gordon, MD
Anna-Luise Katzenstein, MD
Kamal K. Khurana, MD
Steve K. Landas, MD
Sanjay Mukhopadhyay, MBBS, MD
Alfredo Valente, MD
Shengle Zhang, MD

Goals

The goal of this part of the program is for the resident to develop into an outstanding surgical pathologist with strong skills in gross and microscopic diagnosis and the knowledge and ability to utilize ancillary immunohistochemical and molecular techniques as well as current literature in formulating diagnoses.

Objectives

- To recognize gross abnormalities in various specimens and take appropriate sections to demonstrate both the abnormal lesion and its relationship to surgical margins.
- To synthesize information from current literature and textbooks and use it in establishing diagnoses.
- To utilize current immunohistochemistry and molecular techniques to formulate diagnoses.
- To clearly and concisely convey to clinicians both the diagnosis and its implications for treatment and prognosis.
- To diagnose benign and malignant neoplasms as well as non-neoplastic disorders from a wide varieties of sites.
- To formulate a surgical pathology report containing an organized and well-written gross description, a pertinent microscopic description where indicated, and a concise, straightforward, and comprehensible diagnosis.

Curriculum

ORGANIZATION OF THE SERVICE:

The surgical pathology service is divided into a ***Biopsy Service*** and ***Routine Service*** covered by three residents and three attending pathologists. If three residents are not available, the service is covered by an attending pathologist alone. The biopsy resident cuts in and signs out cases every day, while the routine residents cut in and sign out every third day (see sample schedule).

- ***Biopsy*** cases include small biopsy specimens (endocervical/endometrial currettings, cervical biopsies, G-I biopsies, polyps, transbronchial/bronchial biopsies, needle biopsies, etc.) as well as larger biopsy specimens (incisional breast biopsies, lung wedge biopsies, and cases with frozen sections in which there are no additional large specimens).

- ***Routine*** cases include all other cases in which there is no urgency for diagnosis or in which there are a large number of specimens. ***Use judgment in determining what are biopsy and what are routine cases.*** For example, a breast lumpectomy following a prior diagnostic core biopsy is a routine. Most specimens requiring margins are routines. ***If there are any questions ask an attending.***

- ***Neurosurgical specimens*** include biopsies performed by neurosurgeons on brain or spinal cord. They are handled like ordinary biopsy specimens except that they are signed out by the surgical pathology fellow with the attending on the routine (not biopsy) service.

Some biopsy slides are available in the afternoon on the day they are grossed (microwave processed cases), and the resident is expected to review them that afternoon or evening. Special stains can be ordered in the afternoon (with the approval of the attending pathologist), so that they will be available the next morning. The remaining biopsy cases are usually available from the lab at about 8:00 AM the morning after they are grossed, and the biopsy resident is expected to review them before signing out with the attending, usually starting by 10:00-10:30. Sign-out should begin no later than 11:00 so that the resident is available at 2:00 latest to cut in cases in the gross room.

The routine slides are available before noon, and the routine resident has the rest of the day (between frozen sections) to review them and prepare for sign out the next day. Sign-out must start early, latest 9:00 AM, so that the resident can finish and begin cutting in specimens in the gross room by 1:00 latest. Some routines can be signed out on the day after grossing if there is time.

SAMPLE SCHEDULE

	ROUTINE	**FROZEN SECTION**	**BIOPSY**
Monday	Resident A	Resident B	Resident C
Tuesday	Resident B	Resident A	Resident C
Wednesday	Resident A	Resident B	Resident C
Thursday	Resident B	Resident A	Resident C
Friday	Resident A	Resident B	Resident C
Monday	Resident C	Resident A	Resident B
Tuesday	Resident A	Resident C	Resident B
Wednesday	Resident C	Resident A	Resident B
Thursday	Resident A	Resident C	Resident B
Friday	Resident C	Resident A	Resident B

NOTE: The resident follows their cases, although attendings may switch weekly. That is, resident B who cut in routines on Thursday of the first week will sign out those routines the next Monday morning (with the attending assigned routines that week) even though he switches to biopsies that week. Resident C will sign out Friday biopsies on Monday morning even though he switches back to routines that week.

Duties

Gross Room: Resident performs gross examinations and dictate descriptions of specimens. They are responsible for correct labeling and numbering of all cases. Dictations must be concise and include documentation of type of specimen, and measurement and description of normal and abnormal areas. All cases received before 5:00 PM should be cut in the same day unless authorized otherwise by the attending pathologist. ***Instructions in the Gross Room Manual must be carefully followed*** in handling each case. Depending on the resident's time and ability, the pathologist assistant will cut in some specimens and will help in cutting others. ***All specimens requiring sectioning should be shown to the attending pathologist prior to sectioning***. At the discretion of the attending pathologist and depending on the competency of the resident, the decision may be made that small, common routine specimens need not be shown. Residents are responsible for obtaining photographs of selected gross specimens. If there are any questions regarding significant aspects of handling a case, ***an attending pathologist should be consulted before proceeding.***

Residents must work together to complete the grossing. That is, if the biopsy service is lighter, the biopsy resident should help the routine resident and vice versa. Neither the biopsy resident nor the routine resident should leave the Gross Room until all the work is completed.

Frozen Section Room: Residents are responsible, under the direct supervision of the attending pathologist, for examining the gross specimens, obtaining representative sections, cutting frozen sections, staining the sections, and reviewing the slides. If multiple specimens are received from the same patient, they should be assigned a letter designation (A-Z) following the order in which they are received. If more than one block is sectioned for each part they should be numbered (e.g. FSA1, FSA2, etc). The resident is responsible for making sure that the specimen containers match the description on the Intraoperative Consultation request form. Prior to sectioning, glass slides should be labeled with the patient's last name and initial of first name, the specimen letter designation preceded by the prefix FS (e.g. FSA, FSB, FSC, etc.), and the date. If cytology touch preparations or imprints are obtained; the slides should be labeled "TP".

The frozen section diagnosis should be written on the Intraoperative Consultation request form for the patient's chart and delivered to the operating room (white copy only). The same format for reporting diagnoses on permanent sections should be used (i.e., organ site, procedure – diagnosis). When reporting the diagnosis, the resident must address the surgeon by name and give the patient's name before providing the diagnosis. The conversation should be as follows: "Dr. Smith, I have the frozen section diagnosis on Jane Doe". When the surgeon acknowledges that he is being addressed, the diagnosis can be stated.

A written gross description of the specimen is necessary only when sectioning significantly alters the gross characteristics. In such cases the description should be written on the pink form that is available in the Frozen Section Room. It is then sent to surgical pathology with the specimen. **All specimens must be carried by the resident back to the Gross Room when the frozen section is completed.** The only exception is on weekends or after hours when the specimen can be left on the specimen table in the frozen section room.

Case Sign-out: Residents are expected to proofread gross descriptions and organize the paperwork and slides from all cases before signing out with an attending pathologist. Beginning residents may initially examine the microscopic slides along with the attending, but eventually ***all residents are expected to preview slides and provide a formal written diagnosis*** and sometimes microscopic description before reviewing with the attending. Senior residents may be allowed to dictate a microscopic description and final diagnosis before reviewing with the attending pathologist. Residents should be knowledgeable in normal histology of all tissues and should read in specialized text books about specific disease processes. Current literature should be consulted in select cases. Residents should be familiar with ancillary techniques that assist in making the diagnosis, including histochemical stains, immunohistochemical stains, immunofluorescence stains, electron microscopy, cytogenetics, and molecular studies. **Requests for any ancillary study should have the approval of the attending pathologist**.

On-Call: On weekends and after 5:00 PM on weekdays until 8:00 AM, the resident and attending pathologist on-call handle all surgical pathology and cytopathology emergencies, including frozen sections, biopsy specimens, and rarely, cytology samples. The resident on-call should contact the attending on call immediately after being notified to discuss the details of each case.

Responsibilities

First-Year Resident

First Month: Work with senior resident/fellow. Learn to take sections and dictate gross findings. Start with small routines the first week and begin grossing large specimens the second week, taking at least one each grossing day. By the third week the resident should be able to handle most specimens with the assistance of the senior resident/ fellow, and by the end of the fourth week he/she should be able to handle most specimens. Microscopic slides should be reviewed with the senior resident/fellow before signout with the attending, and an appropriate diagnosis

written. Reviewing normal histology should be a priority, but features of neoplasms and other lesions should be understood as well.

Second Month: The resident should be capable of grossing in all specimens in a timely fashion (to finish by 5:00). He/she still works under supervision of a senior resident/fellow and attending pathologist. He/she should be able to write a diagnosis in appropriate format.

Second and Third-Year Resident
These residents are expected to work relatively independently in the gross room and frozen section suite (with approval of and under the supervision of the attending pathologist). They are expected to correctly diagnose the majority of cases and provide a correctly formatted report. With the permission of the attending pathologist they should dictate their diagnoses (and microscopic description when applicable) before signout.

Fourth-Year Resident
In selected cases and with permission of the Director of Surgical Pathology, these residents will assume a supervisory role in the gross room and frozen section suite. In the gross room, they will oversee and teach junior residents and medical students. The will follow the work flow to make sure that cases are appropriately completed. In the frozen section suite they will supervise junior residents in performing frozen sections and will review slides and make preliminary diagnoses before reviewing the case with the attending. In addition to these responsibilities, they will handle all outside referral cases, including dictating the diagnosis before showing to the attending. They will also handle the signout of all neuropathology cases, and they will organize with the Director of Surgical Pathology the Friday morning surgical pathology cases and show the cases at the conference. They will also show cases at the Thursday Oncology conference and the Monday morning Orthopedic Tumor conference.

Methods of Evaluation
All residents work directly with an attending pathologist, and their skills in gross descriptions, microscopic diagnoses, general knowledge, and communication are closely monitored and recorded in written evaluations following each rotation.

VAMC (Veterans Administration Medical Center) Surgical Pathology Rotation

Length of Rotation: 6 months (required)

Teaching Staff:
Margaret Kowalski, MD
Yiran Dai, MD
Henry Friedman, MD
Seena Kumar, MD

The resident should always be physically present in the laboratory, available by pager, or should always communicate their absence to the attending pathologist on service if out of the laboratory during customary working hours. Remember, as a pathologist, you are a consultant aiding in the treatment of a patient, and availability for clinicians as well as your attending is essential.

Goals
1. Acquire and demonstrate knowledge of the basic steps needed in specimen acquisition, gross specimen examination and dissection, and routine specimen processing.
2. Acquire and demonstrate knowledge of the manifestation and pathophysiology of the disease identified such that proper sectioning of the specimen will document and demonstrate

disease and also demonstrate any needed clinically relevant information for proper patient treatment (e.g., staging of cancer, margin involvement by the tumor, etc).
3. Demonstrate knowledge of the proper use of frozen section diagnosis at the time of surgery for clinically relevant patient management.
4. Acquire sufficient skills for microscopic interpretation of routine and fairly common surgical specimens, including the coherent discussion of microscopic diagnosis (as well as any needed special studies or stains) in the final report.

Objectives

By the end of the 6 month rotation in surgical pathology, the resident should be able to:

1. Interpret surgical pathology requisitions and obtain additional information from clinical personnel as required.

2. Show knowledge of the basic steps in gross description and examination of specimens and appropriate sampling for microscopy, including an understanding of the manifestations and pathophysiology of diseases identified within the specimen, as appropriate.

3. Perform microscopic examination and interpretation of slides from common specimens.

4. Obtain consults as required for adequate report sign-out.

5. Obtain and interpret special studies (e.g., electron microscopy, histochemistry, immunohistochemistry), as needed.

6. Reconcile your interpretation with all other available information including clinical history, cultures, radiologic studies, and previous pathology specimens (e.g., compare with previous surgical and cytopathology slides, as needed).

7. Create a meaningful, complete, communicative professional report for the attending physicians, including an appropriate gross and microscopic description and/or comment, as needed.

8. Become familiar with procedures for handling and processing special tissues such as lymph nodes, tissue for estrogen/progesterone receptors, metabolic bone biopsies, nerve biopsies, etc.

9. Cut, stain, and interpret diagnostically useful frozen sections.

10. Present cases at various conferences, as needed.

Curriculum

The content of this rotation consists of the proper handling, sectioning, sampling, and gross and microscopic examination of specimens sent to surgical pathology such that the final surgical pathology report is complete and clinically relevant for proper patient management and therapy. Each aspect of the above mentioned handling of specimens, including sign-out, is based on attending supervision with appropriate reading of surgical pathology texts (such as Rosai and Ackerman's Surgical Pathology, 9th edition, Gray's Anatomy, etc.) for both gross and microscopic examination of specimens. Attending teaching of the resident is primarily done by direct discussion of gross specimens (at the time of grossing and with any needed VA templates) as well as hands on demonstration by the attending, as required. In addition, case discussion at the time of microscopic sign-out as to features pertinent to diagnosis/interpretation occurs while examining

slides at the microscope. Any needed references, including books, journal articles, etc. are made available and discussed at this time (as the case is signed out) or initially in the gross room.

Duties/responsibilities

Read general texts (and specialized texts, as needed) as well as relevant journal articles on surgical pathology, especially those articles pertaining to current case sign-out.

Provide adequate resident coverage on any "off" day, such as for vacation, illness, etc.

Surgical Specimens: The resident is responsible for:

1. Following procedures as outlined in a standard gross manual (such as Rosai and Ackerman's Surgical Pathology, 9th edition) and/or VA template for handling and processing tissues.

2. Rotating with other residents in cutting and signing out surgical specimens (per schedule, as required).

3. Checking the typed history and gross description for typographical errors and making corrections. Reviewing slides and preparing written microscopic descriptions and diagnoses following the appropriate format. Obtaining and comparing relevant old slides from the file.

4. Having cases ready to sign out with attending pathologist according to set priorities (this includes appropriate coding of report).

5. After final typing, checking for typographical errors before final signing.

6. General neatness and safety in the cutting room and reading room, which are required at all times.

Frozen Sections: The resident is responsible for:

1. Always be physically present in the laboratory or available by pager

2. When called for a frozen section, obtaining the specimen, patient's information, imaging studies (if needed), and path requisition.

3. Cutting and staining the frozen section; reviewing it with attending.

4. Preparing report for the operating room and communicating results of frozen section per routine protocol in place at the time of communication with the surgeon.

Graduated responsibility in this section: As residents become more familiar with basic grossing and sign-out, they will acquire more responsibility for handling the specimens, ordering additional stains/tests, and communication of results with clinicians, all with appropriate attending discussion, supervision, and input.

Method of Evaluation

Residents will be evaluated by the attending pathologists concerning the basic fund of knowledge during gross specimen preparation, microscopic interpretation and sign-out and clinician or conference presentation of cases. Resident competencies will be evaluated and assessed as follows:

Resident Assessment

Patient Care
The surgical tissue examination is a consultation requested of the pathologist by the attending physician. The resident must demonstrate a satisfactory level of diagnostic competence and the ability to provide effective pathologic consultation under appropriate circumstances.

Medical Knowledge
The resident will demonstrate knowledge about established and evolving diagnostic scientific practice by developing proper diagnoses and by documenting application of new knowledge as documented in the Surgical Pathology report. In this regard, the final diagnoses rendered by the resident will be judged as to accuracy and appropriateness. Application of new knowledge will be judged by the inclusion of literature references in the report.

Practice-based learning and improvement
The resident will demonstrate the ability to investigate complex cases, evaluate their diagnostic and consultative service, and assimilate scientific evidence into their practice for the continual improvement of their patient care. As with medical knowledge this will be documented on a case-by-case basis through the attending pathologist's assessment of the written report and through conversation with the resident.

Interpersonal communication skills
In that professional interpersonal interaction and communication is paramount to a successful Surgical Pathology practice, the resident will demonstrate effective, respectful, and professional communication with staff, and physicians. This will be fostered by close pathology attending consultation initially and will be evaluated by faculty observation of resident performance on individual cases.

Professionalism
The resident must demonstrate a commitment to medical ethics, sensitivity to diverse patient populations, and professional responsibilities. Completing reports in a timely manner, being sensitive to religious concerns of families, and recognizing the importance of confidentiality in medical practice are always monitored by all faculty.

Systems-based practice
The resident will demonstrate an awareness of and responsiveness to the health care system context in which an autopsy service must function. This includes an understanding of the costs and benefits of this medical practice, the importance of this practice to the quality improvement aspect, to other medical services and the hospital, and to society in general. The costs of requesting unnecessary tests, late completion of the report and failure to communicate appropriately with other medical services will be monitored and discussed with the resident.

Note: All faculty members who have had significant contact with the resident during the VA rotation in surgical pathology will evaluate the resident via the "E*value" program available through the SUNY Department of Pathology. This program prompts electronic evaluation at the end of each rotation based on the (above) six competencies of the ACGME Outcomes Project. This evaluation program also allows for comments on the residents strengths and weaknesses during their rotation, to provide the resident and the department constructive criticism for future resident improvement.

CLINICAL PATHOLOGY ROTATIONS

CLINICAL CHEMISTRY AND MICROSCOPY

(including Andrology with an option of Forensic Toxicology)

Length of Rotation: 2 months

Teaching Staff:

Gregory A. Threatte, MD, Director, Clinical Chemistry
Jannie Woo, PhD, Associate Director, Clinical Chemistry
Robert Sunheimer, MS, MT(ASCP), SC, SLS, Clinical Laboratory Science

Goals

1. Communicates as a medical consultant with other clinicians and patients
2. Functions as liaison between clinicians and the laboratory
3. Capable of directing and managing the clinical laboratory
4. Advises and assists in the judicious ordering of laboratory tests
5. Capable of consulting on methods of diagnostic test development, test utilization in both general and patient-specific clinical settings, and assay interpretation in both acute and chronic clinical patient management
6. Capable of discussing the role of research in clinical decision-making, test development, knowledge generation, and continuing education

Objectives

By the end of the rotation through Clinical Chemistry, the resident should be able to

Conduct effective medical communication and consultation with medical staff regarding

1. the rational use of diagnostic clinical chemistry tests.
2. the interpretation of the complete spectrum of clinical chemistry tests.
3. the pathophysiologic correlation of clinical chemistry test results

Participate in realistic problem solving in directing and managing the clinical laboratory via graded responsibility; types of problems may include clinical, administrative, scientific, and technical.

Discuss the technical and quality control/assurance aspects of replacing existing laboratory instruments/procedures or introducing new laboratory tests/instruments.

Curriculum

All topics must be completed during a Chemistry or Advanced CP rotation by contacting the faculty listed and arranging the exercise or discussion indicated. These are listed below on a checklist to be obtained on the first day of the rotation and maintained by the residency office, any resident who has not have all sections completed and initialed by the faculty person will be considered incomplete. Examples of some of these exercises are listed below:

Topic: Introduction to Clinical Chemistry Dr. Threatte or Dr. Woo.
Review rotation objectives on first day of initial rotation.

Topic: Amniotic fluid, Electrophoresis & Lipoproteins (Dr. Threatte/Kamat)

Instrumentation:

Sebia Hydrasys & Scanning Densitometer
Beckman spectrophotometer

Principle of operation and troubleshooting

Exercise:

Review methodology, and interpret on a daily basis:
Protein Electrophoresis, CSF protein electrophoresis, and amniotic fluid analysis.

Topic: Blood gases (Dr. Threatte/Sunheimer/Brown)
Quality control & statistics (Part l) (Dr. Woo)

Instrumentation:

Blood gas analyzers
Principle of operation and troubleshooting

Exercise:

Perform Blood gas analysis
QC assignments and method evaluation

Topic: Acid-base disorders and electrolytes (Dr. Threatte/LeFever/Sunheimer)
Quality control & statistics (Part 2) (Dr. Woo)

I**nstrumentation**:

Ion selective electrode
Roche Modular: principle of operation and troubleshooting

Exercise:

Learn methodology and perform Na, K, CO2, Cl
QC assignments and method evaluation

Topic: Liver and cardiac function tests (Drs. Threatte and Woo/LeFever)
Enzyme kinetics (Dr. Threatte)

Instrumentation:

Spectrophotometry
Roche Modular: principle of operation and troubleshooting
Roche E170: principle of operation and troubleshooting

Exercise:

Learn methodology and perform AST, CK
Learn cardiac markers: troponin T and CKMB, NT-pro BNP

Topic: Microscopy (Dr. Threatte/Morris)
Renal function and metabolic disorders (Drs. Threatte & Woo)

Instrumentation:

Yellow Iris:
Principle of operation and troubleshooting
Microscopic examination for urine sediments

Exercise:

Learn methodology and perform creatinine and BUN
Perform analysis on a synovial fluid for uric acid crystals
Perform a complete urinalysis on a specimen

Topic: Endocrinology:
Thyroid, Adrenal, Endocrine Pancreas and Parathyroid (Dr. Woo/Mr. Sunheimer)

Instrumentation:
Principle of immunoassay
Roche Modular E170, Abbott IMX and Axsym: principle of operation and troubleshooting,
BioRad Variant HPLC

Exercise:
Learn methodology and perform Ca, Mg, TSH, cortisol & hemoglobin A1c

Topic: Toxicology and Therapeutic drug monitoring (TDM)
(Dr. Threatte/Sunheimer/Brown)

Instrumentation:
Roche Modular E170, Abbott Axsym: principle of operation and troubleshooting

Exercise:
Learn methodology and perform theophylline, digoxin, and gentamicin
Perform a mock inspection of the Clinical Pathology Core Laboratory

Topic: Laboratory Management (Dr. Threatte/Mr. Sunheimer)
Reference laboratory testing (Dr. Woo)
Tumor markers (Dr. Threatte)

Instrumentation:
Principle of fluorescence immunoassay and electrochemiluminescence
Roche Modular E170: principle of operation and troubleshooting

Exercise:
Learn methodology and perform CEA and beta HCG
Assume the role of Director of Clinical Chemistry

As Part of Advanced CP rotation:

Topic: Special project, e.g. method development, instrument evaluation, quality control program, or other research topics of special interest to the resident

Duties/responsibilities
1. Interpret and report the electrophoretic patterns of serum, urine, and CSF proteins, LD isoenzymes, insulin tolerance tests, lipoprotein electrophoresis, amniotic fluid patterns, and pseudocholinesterase studies.
2. Communicate with and assist physicians and residents from other departments with regard to clinical interpretation of laboratory tests, and the rational selection of appropriate tests for patient care.
3. Obtain patient records with remarkable (abnormal) values from the laboratory computer. These patients will be presented to Drs. Threatte and/or Woo by the resident on service. Bedside rounds may then be performed for these patients by the resident and the attending(s) for the purpose of determining the diagnosis and/or recommending further laboratory procedures that will aid in the diagnosis.
4. Attend the Clinical Pathology Core Laboratory inservice conferences on Tuesday at 2:30 p.m.
5. Interface between the laboratory and the medical staff regarding:

- approval/disapproval of selected STAT requests
- test availability and specimen requirements
- inappropriate/mislabeled specimens
- turn around time

6. Help correct erroneous laboratory reports and communicate with the physician(s) concerned regarding appropriate corrective remedy.
7. Review proficiency testing survey reports. Initiate and record appropriate corrective actions on out-of-limits results.
8. Participate in medical technology teaching and in the in-service education for the technical staff.
9. Review critical value reports and meet regularly with Chemistry attending to discuss difficult cases.
10. Present unusual cases at weekly Clinical Pathology service review meeting.
11. Monitor QC data in the section assigned for that week.

Methods of Evaluation

1. Evaluation of residents by faculty members is carried out via use of the "E*value" program commercially available in the Department of Pathology. This system prompts electronic evaluation at the end of each rotation. E*value is based on the six competencies of the ACGME Outcomes Project. The Program Director monitors these comments on a regular basis, and reviews them with the residents at each formal evaluation session Each formal evaluation document also includes suggestions by the program director for improvement, which is then monitored at the next session. The Program Director creates a final evaluation of each resident who completes the program. This is maintained in a permanent record.

2. To assure quality in training and to comply with requirements of residency accreditation, a Web-based interactive quiz module with online grading is developed to evaluate a resident's achievement of stated educational goals and to benchmark progress in Clinical Pathology residency training. To use the quiz module, the resident selects a section and a topic to display a listing of multiple-choice quizzes. When selected, each quiz shows the body of the question with five multiple-choices. Clickable thumbnails of images and tables, if called for, will also be displayed in the body of the quiz. Upon submission of a choice to a question, the correct answer is displayed and the submitted answer is immediately graded and scored online. At the same time, the resident is asked to give a succinct explanation to his/her choice. Upon submission, the resident's answer accompanied by the official explanatory answer is displayed.

   Presently, the quiz module covers three major sections of Clinical Pathology: Clinical Chemistry, Hematopathology, and Transfusion Medicine. For each section, pertinent topics are setup under each section to cover all learning objectives. Sufficient multiple-choice questions with affiliated images and tables of laboratory results are available for each section to allow pre-testing and post-testing purposes during a resident's rotation through that section. This means of evaluation will be applicable to all major sections of Anatomical and Clinical Pathology.

CYTOGENETICS

Length of Experience: 1 month required rotation

Teaching Staff:
Constance K. Stein, PhD, Director
Lawrence Gordon, MD, Assoc. Director
Antony Shrimpton, PhD, Assistant Director

Lori Plaisted: Cytogenetics Supervisor
Mickey Muscolino: Assistant Supervisor
Technologists: Lisa Beneway, Marcia Bellinger, Laura Benz, Randy Grimshaw, Stephanie Mazzullo, Karen McKnight, Nicole Stewart, Susan Wixted
Secretary: Cynthia LaFountain

Goals
The goal of this clinical Cytogenetics rotation is to provide the residents with an overview of Medical Genetics, including exposure to standard karyotype analysis, prenatal diagnosis, cancer genetics, and molecular cytogenetics (FISH). The resident will gain an appreciation for the basic techniques in cytogenetics including tissue culture, cell harvest, slide preparations, banding, special staining, microscopy, and computer assisted karyotyping. By the end of the rotation, the resident will be expected to be able to interpret the clinical data and correlate laboratory findings with various clinical outcomes in unknown case studies.

Objectives
1. To correctly perform karyotype analysis.

2. To understand how each of the different tissue types is processed for cytogenetics analysis.

3. To be able to distinguish the difference between site specific, repeat sequence and whole chromosome painting probes and the appropriate applications of each.

4. To learn the function and application of the computer assisted karyotyping system.

5. To utilize the data collected on unusual cases and be able to write a sample report of the quality that could be sent to the referring physician.

6. To be able to apply the principles of cell division, nondisjunction error, imprinting, mutation, and chromosome structure when interpreting cytogenetic results.

7. To be able to differentiate between cytogenetics and molecular diagnostics and the appropriate applications for each.

8. To be able to apply genetics to a topic of interest and present an in-service to the staff.

Curriculum
1. The resident will work with a senior technologist to set up a blood culture using standard techniques. He/she will proceed through all steps of the protocol including cell harvest, slide preparation, staining, and chromosome interpretation with guidance from the technical staff.

2. The resident will observe the culture of amniotic fluid, tissue, and bone marrow cells.

3. The resident will observe the technique of fluorescence *in situ* hybridization.

4. The resident will observe the application of the computer assisted karyotyping system.

5. The resident will attend and participate in the weekly Cytogenetics Case conference. In addition, the resident will be given 15-20 unknown cases for analysis. He/she will work up each case, write a sample report, and discuss the findings with the laboratory director.

6. The resident will review the principles of Medical Genetics and be familiar with the principles of cell division, nondisjunction error, imprinting, mutation, and chromosome structure.

7. The resident will present an in-service to the staff on an area of genetics that he/she is interested in. the presentation should be topical and provide both basic and more complex elements of the subject discussed.

Duties/reponsibilities

After having completed the rotation, the resident will be expected to coordinate with the Laboratory staff in obtaining appropriate specimens and clinical information on cases. On weekends, he/she will report FISH results to clinicians.

Methods of Evaluation = assessment by attending

Residents will be evaluated by the Cytogenetics Laboratory director on their base of knowledge during case conferences, their presentation of the unknown case studies, and the in-service presentation. In addition, there will be input on resident's performance in the lab by the Laboratory supervisor and technologists who worked with that resident.

Recommended Reading List

Borgaonkar, Digamber. 1997. Chromosomal Variation in Man: A Catalog of Chromosomal Variants and Anomalies, 8th Edition. Alan R. Liss, Inc.

De Grouchy, Jean and Catherine Turleau. 1984. Clinical Atlas of Human Chromosomes, 2nd Edition. John Wiley and Sons.

Gelehrter, Thomas and Francis Collins. 1998. Principles of Medical Genetics, 2nd Edition. Williams and Wilkins.

Hein, Sverre and Felix Mitelman. 1995. Cancer Cytogenetics, 2nd Edition. Alan R. Liss, Inc.

ISCN 1995, An International System for Human Cytogenetic Nomenclature. S. Karger.

Jaffe, E.S., N.L. Harris, H. Stein, J.W. Vardiman, Eds. 2001. Pathology and Genetics: Tumours of Haematopoietic and Lymphoid Tissues. World Health Organization, IARC Press.

McKusick, Victor. 1998. Mendelian Inheritance in Man: Catalogs of Autosomal Dominant, Autosomal Recessive, and X-linked Phenotypes, 12th Edition. Johns Hopkins Press.

Mitelman, Felix. 1990. Catalog of Chromosome Aberrations in Cancer. Alan R. Liss, Inc.

Rooney, D.E. and B.H. Czepulkowski. 1992. Human Cytogenetics, A Practical Approach, 2nd Edition. IRL Press.

Nussbaum, Robert, Roderick McInness, and Huntington Willard. 2001. Thompson and Thompson - Genetics in Medicine, 6th Edition. W.B. Saunders Co.

Verma, Ram and Arvind Babu. 1995. Human Chromosomes - Manual of Basic Techniques, 2nd Edition. McGraw Hill, Inc.

HEMATOLOGY ROTATIONS

Teaching Staff:
Robert E. Hutchison, MD - Director
Katalin Banki, MD
Sylva Bem, MD
Neerja Vajpayee, MD

Goals
The goal of the Hematology rotations is to prepare residents to interpret a wide range of hematologic abnormalities; to communicate findings and serve as a consultant to clinicians; and to constantly appraise laboratory tests in a changing environment.

Objectives

Patient care
Residents will demonstrate compassionate, effective and appropriate diagnostic and consultative services as required by clinicians and general hospital services for the care of both the inpatient and other outpatient populations.

Medical Knowledge
Residents will expand their skill to approach potential diagnoses of hematologic malignancies systemic disorders affecting bone marrow, lymph nodes and other organs; bleeding abnormalities and thrombotic conditions; hemoglobinopathies, thalassemias, anemias; and a varied array of other hematologic abnormalities.

Practice-Based Learning
Residents will solve complex cases, perform literature searches, assimilate new findings in their work, and seek input from experts.

Interpersonal and Communication Skills
The resident will interact with patients, fellow residents, technicians, nurses and clinicians. He will present cases in patient care conferences and discuss patient management with clinicians

Professionalism
Residents must adhere to principles of medical ethics, confidentiality and must always serve the interest of patients

Systems-Based Practice
A major objective is that the resident gain sophistication in the appropriate choice of laboratory tests for a given clinical situation.

While the achievement of technical proficiency in laboratory procedures is not a specific objective of these rotations, sufficient familiarity is required such that the resident can appreciate the intrinsic limitations of the procedures, as well as recognize unlikely individual test results that might reflect technical artifact.

During these rotations, the resident should also discuss maintenance of quality control in hematologic procedures.

In order to maximize achievement of these objectives, residents are strongly advised to establish close working relationships with technologists and supervisors in the laboratories, a number of whom are truly expert in the field.

Curriculum

The didactic component is presented primarily in a biweekly seminar series. This is a comprehensive survey of diagnosis of blood diseases and is repeated every two years. There is an emphasis of presenting new findings. All pathology residents, hematopathology fellows and faculty, and medical students and residents attend these seminars from other specialties, who rotate through pathology services. There is a weekly Hematology/Oncology conference with formal case presentations and discussion of patient care.

Clinical component. There are three bone marrow, two hematopathology/flow cytometry and two special hematology rotations.

Method of Evaluation

A rater judges general categories of patient care skills, medical knowledge, interpersonal and communication skills, professionalism, systems-based practice and practice based learning and the ratings are completed retrospectively based on general impressions collected over a period of time (end of rotation) derived from multiple sources of information (direct observations or interactions); input from other faculty, lab technologists and residents and review of work products or written materials. Residents will participate in proficiency programs (required of technologists) to demonstrate basic technical proficiencies.

Bone Marrow and Blood Morphologic Studies Rotation (3 months):

Teaching and Technical Supervisor: Theresa Fuscia*, MT (ASCP)*

Duties/Responsibilities

Read bone marrows. Perform differential counts of PB (200 cells, new heme case; 100 cells, repeat on metastatic disease) and BM (500 cells or 300 cells). Review all slides; write up the report of the marrow and blood in detail. Review and sign out the cases with the clinical pathologist on service. Read regularly in the recommended references and current literature about the cases you see and the questions that arise.

Be sure the marrow is scanned on the same day it comes in, and that any obvious significant findings are confirmed by the attending pathologist and are reported to the patient's resident or attending physician.

The marrow biopsy sections ordinarily will be ready one day after the marrow is obtained. Look at all the sections when they come in. Write a description and incorporate it in the marrow report for reviewing with the attending.

Flow cytometry and sometimes cytochemistries (when needed) are performed as a part of the workup of new patients with hematologic neoplasms. Interpretation of flow cytometry is included in the report. Graphs are reviewed and percent positive cells are tallied by the software program. Adjust gates and thresholds as appropriate. The results should be incorporated in the marrow reported.

Cytogenetic, FISH and molecular assays should be ordered as appropriate. Results of molecular tests are included as procedures in the report. Those, and results of cytogenetic studies, are to be noted in addendum reports if morphology and flow are signed out prior to their completion.

Promptly proofread and sign both preliminary and final reports. Unless special studies entail a delay, the report should go out on the second day after the specimen was obtained.

Learn preparation and staining of films, preparation of paraffin sections, and touch imprint techniques.

Learn and perform bone marrow aspiration and biopsy procedures (at least 3) through arrangement with the Clinical Hematology team and Attending Clinical Hematologist on service.

On weekends and holidays (when on-call) and during the week (when on the Bone Marrow Service) look at abnormal or difficult blood films from the Clinical Pathology Core Laboratory in order to check the results of the technologist, as requested. Confirm your impressions with the Hematopathology Fellow, and with the attending pathologist, if necessary. Contact the physician, if appropriate.

Read peripheral blood films (teaching slides or of diagnostic importance) that are accessioned with the bone marrow specimens. These reports are written up on a form similar to the bone marrow report and should be treated in the same fashion.

Become credentialed in the myeloperoxidase procedure. For the neutrophil alkaline phosphatase (NAP) assay, perform a count of the cells and compare with that of the technologist's. When signing out subsequent NAPs, look at the films to get your impression of the results and validity of procedure.

Attend and participate in hematology conferences. For the Tuesday conference, present cases and appropriate review of the topic, as assigned by the attending pathologist in charge of the conference. For the Thursday conferences with the clinical hematologists, prepare your cases with the assistance of the attending pathologist, and present them at the conference.

Be available for presentation of case studies and lectures to medical technology students and hematology staff.

Develop a working knowledge of immunoglobulin and T-cell receptor gene rearrangements and assays for the molecular abnormalities as applicable to the diagnosis of hematopoietic neoplasms.

Develop a working knowledge of cytogenetic abnormalities in leukemias and lymphomas, e.g., t(8;21), t(15;17), t(9;22), t(8;14), t(8;22), t(2;8), t(4;11), t(1;19), t(11;14), inv16, tris12, t(2;5), and t(14;18), etc.

Special Hematology Rotation (1 month)

Teaching Supervisor: *Janis Hansen, BS, SH (ASCP)*

Duties/Responsibilities

Become credentialed to take histories on all referral patients on our consultation service. Select studies most appropriate to evaluate the patient's disorder. Before the patient leaves, review the history and proposed tests with the attending pathologist.

Hemostasis evaluations: Work with the technologists and attending pathologist to determine the appropriate tests to be performed. Sign out interpretation with attending pathologist and contact referring physician to discuss future diagnostic and followup testing and proper therapy.

Hemoglobin/thalassemia evaluations: Work with the technologists to determine the appropriate tests to be performed. Check the Wright-stained blood films. Procure further clinical information as indicated. Write interpretation and sign out with the attending pathologist.

Osmotic fragility determinations: Work with the technologists to determine the appropriateness of an osmotic fragility determination, in consideration of the clinical history and, if available, the peripheral blood film. Write interpretation and sign-out with the attending pathologist.

Become familiar with all procedures. These include instrument checks, calibration and quality control. During the month that this rotation is combined with the rotation in Clinical Chemistry, the resident will spend one week focusing not only upon testing performed in the special testing section, but also upon testing performed with high volume and more automated instrumentation.

Instrumentation (principles and maintenance)

- Blood diluting procedures
- Abbott Cell-Dyne 4000
- Diagnostica Stago. STA Coagulation Instrument
- Hemoglobinometry
- Calibration
- Maintenance of spectrophotometers
- Phase microscopy and platelet counting
- Centrifuges
- Standard
- Microhematocrit
- Platelet lumi-aggregometer and whole blood aggregometer
- Beckman and Sebia electrophoresis apparati
  Isoelectric focusing apparatus
- Bio variant HPLC apparatus

Preparation of reagents

- Wright's stain
- Cytochemical methods
- Blood-diluting fluids
- Use of anticoagulants: Citrate, Heparin, EDTA
- Buffer solutions

Quantitative evaluation of laboratory data

- Quality Control statistics
- Economics and administration of hematologic laboratory

Hematologic procedures.

- Obtaining blood: Capillary, Venous, Various sites
- Counting of erythrocytes: Abbott Cell Dyne
- Preparation of blood films: slide, coverslip
- Staining of blood films: Wright's stain, Special stains
- Reticulocyte
- Platelet counts:
- Hematocrit: micro, Abbott Cell Dyne
- Red cell indices
- Review, interpret blood cell histograms
- Westergren Sedimentation rates (ESR)
- Automated erythrocyte sedimentation rate (Vesmatic)
- Eosinophil counts

- Osmotic fragility of erythrocytes
- Autohemolysis
- Sickling determinations
- Hemoglobin electrophoresis - alkaline electrophoresis, acid electrophoresis, isoelectric focusing
- Sucrose hemolysis test
- Acid serum hemolysis test
- G-6PD screening tests and assay
- Unstable hemoglobin: heat denaturation; isopropanol solubility
- Hemoglobin A_2 assay (this is a part of the HPLC method - no manual method
- Acid elution (fetal hemoglobin)
- Heinz body preparation
- Hemoglobin H Preparation (brilliant cresyl blue)

Coagulation and Platelet Procedures.

- Obtaining blood (special techniques, such as two syringe technique)
- Bleeding time - Simplate II
- Partial thromboplastin time, Thrombin time, One-stage prothrombin time
- Platelet aggregation and release reaction studies; impedance aggregometry
- Clot retraction
- Platelet count
- Procoagulant factor assays
- Fibrinolysis - Euglobulin lysis time
- Screening Test for fibrin degradation products: D-dimer tests
- Fibrinogen assay
- Circulating inhibitors - Lupus-anticoagulant test battery
  - Factor VIII inhibitor (Bethesda)
- PFA-100
- von Willebrand Factor Antigen, Activated Protein C resistance
- Ristocetin cofactor
- Factor XIII screening test (urea solubility)
- Chromogenic assays - Protein C activity, Antithrombin III activity Heparin levels, etc.

HEMATOLOGY, ABNORMAL RESULTS STANDARD OPERATING PROCEDURE

The Hematology technical staff will call the patient's physician immediately to report any of the following:

Hematocrit	< 25 or > 55%
WBC	< 2 x 10^3/_L or > 30 x 10^3/_L
Platelet	< 50 x 10^3/_L or > 1000 x 10^3/_L
Prothrombin time	> 30 sec
Partial Thromboplastin time	> 90 sec
Thrombin Time	> 40 sec

Unexpected differential findings, including blasts in a new patient or leukemic patient in supposed remission will also be called. These findings will be confirmed with the Hematology Supervisor, the Clinical Pathology Bone Marrow Resident (or resident on-call), or the Attending Pathologist.

In the case of a clinically important unexpected finding (such as blast cells in a new patient suggesting the diagnosis of leukemia), the Hematology Supervisor will consult the Clinical Pathology Bone Marrow resident. The resident will confirm the finding, checking with the hematopathology fellow or attending pathologist as necessary, and call the clinical physician to report the finding and inform the clinician of its implications.

Hematopathology Consultation and Flow Cytometry Service Rotation (2 months):

Teaching and Technical Supervisors: *Pat John, MT (ASCP), Immunology and Flow Cytometry, Donna Barrett (Processing), Julie Lippa (Immuno-histochemistry),*

Objectives
The primary objective of this rotation is for the residents to learn the roles of modern immunophenotypic studies in the diagnosis and classification of leukemias and lymphomas and the skills of morphologic diagnosis in hematologic tissues. All residents should acquire a foundation, which will allow them to handle difficult hematopathology problems in an appropriate fashion. Those with particular interest have opportunities to gain experience with new and evolving technologies as well.

Duties/Responsibilities
Screen incoming cases by reviewing a Wright-Giemsa or H & E stained slide and see that cell counts are performed on blood and cell suspensions.

Evaluate cases, including those submitted for morphologic evaluation only for the need for additional studies such as gene rearrangements, cytogenetics or additional markers and communicate these to the referring pathologist or clinician. Request appropriate studies and ensure that the correct materials are transported to the specialized laboratory (Molecular Pathology, Cytogenetics, etc.).

For cases submitted for flow cytometry, appropriately note on the flow cytometry accession sheet the type of disease in question and select the appropriate antibody panel (i.e., acute leukemia, lymphoma, screening, MDS, myeloma). Assist in selection of gates. Review graphs of multi-labeled flow cytometric antibody results, assess appropriateness of gates and describe results. Percent positive cells are tallied by the software program. Adjust gates and thresholds as appropriate. The results should be incorporated in the marrow reported.

Interpret lymph node and related tissue biopsies. Write a microscopic description of H&E morphology. Select appropriate antibodies and blocks for immunochemistry. Quantitate each antibody stain performed on sections and/or cytopreps.

For cases in consultation from Surgical Pathology, which have been previously written up, review morphology and present the findings to the hematopathology attending. Contact surgical pathologists by phone if significant alterations are made in the report.

For cases on which molecular diagnostic tests are performed, review the pathology slides and data and results of molecular testing. Write an interpretive report and present to the Hematopathology attending. Write any appropriate addendum to previously issued Hematopathology or Bone Marrow reports, also for review by the attending pathologist.

Cytogenetic, FISH and molecular assays should be ordered as appropriate. Results of molecular tests are included as procedures in the report. Those, and results of cytogenetic studies, are to be noted in addendum reports if morphology and flow are signed out prior to their completion.

Learn technical aspects of processing lymph node, bone marrow and blood specimens for immunologic markers and related studies (including cultures, molecular studies and cytogenetics). Learn how to prioritize small-sample processing for optimal case-specific studies. Residents are encouraged to process control materials through entire technical procedures.

Utilize and contribute to lymphoma glass slide study sets.

Attend Hematopathology conferences and present cases at Thursday Hematology/Oncology conferences.

Participate in leukemia or lymphoma protocol reviews as indicated by the attending pathologist.

Read regularly in the recommended references and current literature about the cases you see and the questions that arise.

IMMUNOLOGY and FLOW CYTOMETRY

Length of rotation: One month required

Nick Gonchoroff, DrPH – Director
Arthur Tatum, MD/PhD – Director Renal Laboratory
Patricia John – Supervisor Immunology/Flow Cytometry Laboratory

A one-month rotation in Immunology/flow cytometry is part of the resident's core curriculum and will be completed in the 1st, 2nd, 3rd or 4th year of training. During this period, residents are expected to familiarize themselves with the principles and performance of, and gain practical experience in the use of, techniques and interpretation of currently performed serological and immunodiagnostic tests, and in the management of an immunology and or flow cytometry laboratory. Residents will also learn basic principles of immunopathology through participation in signing out of clinical laboratory immunological tests.

Statement of Goals: The goals of the Immunology flow cytometry rotation are:
1) Acquire a base of knowledge, skills, experience and understanding of the principles and applications of methods used in contemporary clinical testing involving immunology testing applied to microbial infections, rheumatological/autoimmunity, immunodeficiency, and related disorders.

2) Attain competency in the science and practice of immunology through exposure to the process of applying and interpreting data generated by tests of immunological function.

3) Acquire the skills, knowledge and understanding of the technical and performance limitations and potential pitfalls inherent in the methodologies employed so as to avoid pitfalls in misinterpretation.

4) Acquire sufficient skills, knowledge and understanding of the process of setting up immunology testing, including validation, regulatory and statistical requirements.

Training Objectives of this rotation
1. By the end of the rotation residents should be comfortable in their ability to interpret results generated using immunopathology techniques used in clinical laboratory testing, including:
    a. Clinical Immunology
        (1) Antinuclear antibody and ANCA analysis
        (2) Hepatitis/HIV serology
        (3) Immunodeficiency syndromes
        (4) Fetal defect markers
        (5) Infectious disease serology
    b. Flow Cytometric Immune Cell Enumeration
        (1) HIV monitoring
        (2) Stem cell enumeration

(3) Malignant leukocyte immunophenotyping

c. Renal Pathology/Immunology

(1) Diagnostic tissue for rejection, rheumatologic cases

2. Discuss the general approach for implementing and validating immunopathology assays for clinical service work meeting Federal and State requirements.
3. Describe and apply the principles and techniques involved in the Immunopathology Diagnostics Laboratory (Luminex, direct and indirect immunofluorescence, flow cytometry, ELISA, immunodiffusion, nephelometry, complement analysis).

Responsibilities:

1. Read general texts on immunopathology.
2. Familiarize themselves with the principles, tests and equipment. Review immunopathology pathology PowerPoint presentations and take accompanying tests.
3. Perform a direct and indirect immunofluorescence test for analysis for a disease or autoimmune condition on a biological sample.
4. Spend time with the director to learn the concepts of immunopathology.
5. Review past cases and evaluate, make preliminary interpretation and present sign-outs to the attending - during the second half of their rotation.
6. To become sufficiently knowledgeable about all tests performed by the section so as to provide consultative activities by discussing appropriate testing with referring clinicians.
7. Learn how to set up and perform unassisted a simple flow cytometry assay using one of the flow cytometers in the laboratory.
8. Work with the technologists within the laboratory at the bench level.
9. Read ANA and ANCA slides with the technologists and laboratory director. Follow-up with any unusual cases.
10. Work with Dr. Tatum and sign out the renal cases on an as needed basis.
11. Research and present at staff meeting, either an interesting case or a potential test for consideration for addition to the service.

Typical Rotation Schedule

Week One: Rotate in Clinical Immunology
Week Two: Rotate in Clinical Immunology (Afternoons with Dr. Tatum)
Week Three: Rotate in Flow Cytometry (Afternoons with Dr. Tatum)
Week Four: Rotate in Flow Cytometry (Afternoons with Dr. Tatum)
Week Five: Rotate in Areas Missed or Needing Additional Work

Graduated responsibility in this section: As residents become more familiar with the tests, they are better able to help advise in the selection of appropriate immunopathology testing. A second rotation elective is available and involves the research evaluation and adoption of new immunopathology diagnostic tests.

Curriculum

Tests performed:

Immunopathology Diagnostics Laboratory:

Luminex specific ANA analysis, immune cell immunofluorescence (ANA, ANCA, tissue specific autoantibodies) direct specimen numeration by flow cytometry, ELISA (viral and auto-immune conditions) nephelometry, complement analysis, cold agglutinin and cryoglobulin analysis.

Didactic Lecture Series
Residents should review the immunopathology PowerPoint lectures.

Wet Lab
Residents will perform hands-on manual direct and indirect Immunofluorescence testing and flow cytometric immune cell enumeration.

Core Immunopathology Pathology Rotation
Throughout the Core Immunopathology pathology rotation, the resident will attend the following meetings/conferences:

Immunopathology Pathology staff meeting, CP Conference Mr., TBA
Clinical Pathology Weekly Rounds, CP Conference Room, Mondays at 11:00 a.m.
Rheumatological Pathology Conference 7:30 AM, third Thursday of the month,
Renal Pathology Conference, 4:00 PM second Tuesday of the month,
Renal Pathology Sign-outs as directed by the Director.

The resident should also arrange to meet (usually in the afternoons) with the Immunopathology Pathologist on service each day to review clinical and anatomical cases. The resident needs to preview these cases in the first part of the rotation, but in the latter half of the rotation (depending on the resident's proficiency) the resident should arrange to receive and preview these cases prior to looking at them with the Immunopathologist.

Method of Evaluation

Global Rating of Live or Recorded Performance: A rater judges general categories of ability (patient care skills, medical knowledge, interpersonal and communication skills) and the ratings are completed retrospectively based on general impressions collected over a period of time (end of rotation) derived from multiple sources of information (direct observations or interactions); input from other faculty, lab technicians and residents and review of work products or written materials. The general expectation is that the resident will spend a minimum of three continuous weeks in this rotation.

LABORATORY MANAGEMENT/LABORATORY INFORMATICS SERVICES

LENGTH OF EXPERIENCE: 1 month required rotation

GOALS
The goal of the Laboratory Management rotation is to provide the resident with the opportunity to be exposed to and understand and utilize the basic management principles required to function in the role as an administrative leader in the Department of Pathology. The Laboratory Informatics rotation's goal is to provide training, understanding and use of the varied hardware platforms and software for acquisition, storage, analysis and transmission of clinical laboratory information.

The Laboratory Management/Laboratory Informatics Services rotation is a four-week experience during which time the resident interacts on an essentially full-time basis with various management and administrative members and senior faculty members of the Department of Pathology. Through a series of discussions, readings and interchange, the resident should obtain valuable information and exposure to a variety of topics. Residents may also be asked to attend and participate in certain meetings, as with the pathology work group and hospital administration.

Laboratory management areas of training deal with general management, financial management, operations management, personnel management and marketing. Laboratory Informatics Services

will include selection of a laboratory information system (LIS) and criteria, purchase specifications, security issues and system functions. Micro computing will include PC's (IBM's or clones) and Macintosh computers as tools for the physician and manager. Interface issues and specific software are presented as well as some basics in maintenance and troubleshooting.

OBJECTIVES

Laboratory Management

1. Residents will be able to prepare and conduct an interview for a laboratory technical employee or supervisor. Residents will be able to review resumes and develop legal and appropriate interview questions.
2. Residents will be familiar with preparing and completing employee performance programs and competency-based evaluations and meeting with employees to conduct performance reviews.
3. Residents will be able to develop pathology performance improvement programs. Residents will have familiarity with the principles of continuous quality improvement.
4. Residents will review various management scenarios and provide feedback about how they would prioritize and propose solutions or delegate for unique situations.
5. Residents will be familiar with the pathologist's role and committee responsibilities for the Institutional Blood Utilization Review Committee.
6. Residents will be familiar with JCAHO and NYS Department of Health regulations regarding Point of Care Testing. Residents will be able to discuss the appropriate steps in overseeing extralaboratory testing, including setting up a program, running multi-disciplinary meetings, review of training and QI and PT records.
7. Residents with be familiar with CLIA regulations regarding requirements for Physicians Office Laboratories and the distinctions between POL's and hospital clinical laboratories.
8. Residents will review test-cost analysis and workload methodologies and know the components that are necessary to determine total and marginal costs.
9. Residents will be familiar with inspection and accreditation by organizations such as the NYS Department of Health, Joint Commission for the Accreditation of Hospital Organizations, College of American Pathologists including preparation for and conducting surveys.
10. Residents will be able to discuss examples of modern aspects of pathology technology including robotic systems, pneumatic tubes, real time testing.
11. The residents will be able to discuss marketing of laboratory services including challenges of marketing for varied customers, how to differentiate laboratories; marketing responsibilities for potential and current customers, marketing literature and information distribution analysis and follow up of customer surveys.
12. Residents will discuss issues related to administration of a pathology medical practice plan including structure, benefits, taxes, liability and insurance.
13. Residents will be familiar with billing office functions including accounting, reimbursement and financial reports.
14. Residents will be familiar with billing issues related to Clinical and Anatomic Pathology including appropriate CPT-4 coding for procedures, ICD 9 codes, etc.
15. Residents will be familiar with a laboratory compliance plan and departmental responsibilities. Residents will know the HIPAA law requirements regarding privacy and security for all methods of handling information.
16. Residents will have familiarity with selection criteria for laboratory information systems including purchase specifications and preparation and evaluation of RFP's.

Laboratory Informatics

17. Residents will be familiar with and be able to operate and perform basic laboratory information system functions including data entry and recall, storage analysis and transmission of laboratory information.

18. Residents will be able to perform literature searches in the library or on-line via department PC's.
19. Residents will be familiar with the capabilities of PC's as a tool for the clinician, pathologist, manager, researcher and educator.
20. Residents will be familiar with the connectivity of PC's and LIS in CP and AP, with the hospital information system, web and outside systems.
21. Residents will be able to utilize various software programs including, Word, Word Perfect, Excel, PowerPoint, Access, Windows and lookup and enter data in the LIS and CoPath for AP. Spreadsheets and software presentations will be developed.
22. Residents will be familiar with use of image processing in Pathology: types of digital images and their use in telecommunications and electronic display.
23. Residents will be familiar with web development basics including HTML and Java Script, building a home page, database design and usage, and web-based image enhanced reporting.

Specific topics to be covered and the individual responsible are detailed on the following list:

Teaching Staff:

Carol Barnett, B.A., UPL, Marketing Specialist
Marketing laboratory services: new concept to health care; marketing challenges - multiple customer base, marketing a service is difficult, differentiating labs; marketing responsibilities - potential and current customers, literature, customer surveys.

Dale Chauncey, B.S., Supervisor, Outside Laboratory Testing
NYS DOH regulations re: extralaboratory testing; policies and procedures for extra-laboratory testing, rounds - meter checks; other outside testing - DOC, Contract management and development; physicians office laboratories - requirements for physicians office laboratories now and under CLIA '88; MOA.

Anthony S. Kurec, M.S., D.L.M., Department Co-Administrator and UPL
Test cost analysis; Workload; regulation issues; DOH laws; JCAHO, CAP OSHA, NCCLS, FDA regulations; chain of custody regulations; capital equipment lease/purchase orders; modern aspects of pathology (robotics, pneumatic tubes, real time testing, etc.); managed care compliance.

Richard Martin, B.S., Laboratory Informatics Services Supervisor
Interface issues with selection of LIS and criteria, purchase specifications and requests; CAP inspection standards for LIS; FDA guidelines for LIS security, CLIA '88 as pertains to LIS; Basic LIS system functions.

Linda DeHority, B.S. SBB, Blood Bank Supervisor
Pathologist and Hospital Transfusion Committee; informed consent issues; Blood component review - JCAHO requirement; Blood Utilization Committee - pathologist's role, review committee responsibilities.

Karla J. Lauenstein, M.S., D.L.M , Director, Department of Pathology
Recruiting, interviewing, retention; define technologist vs. technician; personnel law; job descriptions, orientation manual; performance programs and evaluations, progressive discipline and discharge; pathology policies and procedures; quality assurance - hospital, pathology, Total quality management/continuous quality improvement; customer service; budgets - personnel, supply and expense, capital equipment and justifications; laboratory safety - universal precautions,

chemical hazards plan; inspections; accreditation - NYSDOH, JCAHO; various management scenarios - prioritization and handling unique situations.

Kathy Sayles, M.S., Assistant Pathology Manager
CPT4 coding for Pathology, laboratory compliance regulatory agencies, billing issues in Surgical Pathology, CAP workload recording in Surgical Pathology, Surgical Pathology reporting and introduction to institutional compliance office, discussion of compliance in the laboratory.

David D. DeHority, M.S., Micro Computer Coordinator, Department of Pathology
Introduction to PC's as tools for the physician as a caregiver, Pathologist, manager, researcher and teacher. Issues in managing and maintaining micro computing resources within a pathology department. History of micro computing (past, present, future), in general and specific to the laboratory. A look at past, current, and up and coming technologies in the micro-computing field. Use of microcomputers in the laboratory, as a tool, and connectivity (to the LIS, HIS, WEB, and outside systems). Hands on introduction/training with WordPerfect, Excel, Powerpoint, Access, Windows, LIS and CoPath Workstations for AP. Some basics about maintaining and troubleshooting microcomputers, printers, and network problems. Discussion of the Mysis Co-Path AP product, its design, functionality, and capabilities. Discussion of current AP products in the marketplace.

Elizabeth Rosaschi, M.S., University Pathologists Laboratories, Administrator, Accounting & Billing
Issues of reimbursement, administration of the medical practice plan, billing office, accounting functions, financial reports; administering research accounts; insurance; and managed care.

Jannie Woo, PhD, Professor of Pathology, Laboratory Informatics
Objectives: Residents in Pathology should seek to master the following areas during rotation through Pathology Informatics and on others rotations when applicable.
Basic computer training: Introduction to computing. Hardware terminology and functions. Operating systems (PC and Macintosh). Programming languages: a conceptual perspective.
Laboratory information systems: (LIS usage training for a rotation IS NOT EQUIVALENT to informatics instructions.) Principle of operating systems. Hardware architecture to effect distributed vs centralized processing. Functional knowledge about models of data storage and retrieval, LIS/HIS integration. Networking and local area network (LAN). Using the LIS to assess workflow, data quality (QC), cost-effective analysis of clinical laboratory tests, and data retrieval for epidemiology and trend and trends forecast.
Usage of applications programs on personal computer: Word processing: WordPerfect, Word. Spreadsheet: Excel. Statistical and graphic tool for data analysis: Sigmaplot. Presentation software: PowerPoint.
Telecommunication, Intranet, Internet and the WWW: Image processing: Types of digital images and their use in telecommunications and electronic display. Multimedia electronic (computer-based) patient record systems: data input/output, query tools, etc. Web development basics: HTML and JavaScript. Building a home-page. Database design and usage. Integrated AP/CP reporting. Web-based image enhanced reporting in pathology.

Gregory A. Threatte, MD, Chair, Department of Pathology and Staff – General Principles and Central Laboratory Management
Role of department chair; organization of a pathology department; interaction with hospital administration; setting up contracts; organization of a clinical practice plan; recruiting pathologists; overview of department finances; purpose, structure, and conduct of meetings; the pathologist's role in local, national, and international organizations; conducting laboratory inspections; intra-departmental interactions with other pathologists, managers and supervisors; health care organization and delivery; medical staff and hospital organization.

Robert Hutchinson, MD, Medical Director, Clinical Pathology
Management related activities concerning the pathologist's role as Director of Clinical Pathology.

Anna-Luise Katzenstein, MD, Medical Director, Anatomic Pathology
Management related activities concerning the pathologist's role as Director of Anatomic Pathology to include Surgical Case Review/Tissue Committee, Cancer Committee, etc.

CLINICAL MICROBIOLOGY

Length of Rotation: 2 months required.

Faculty:
Scott Riddell, PhD, MT(ASCP), D(ABMM) - Director
Deanna Kiska, PhD, D(ABMM) - Assistant Director

GENERAL STATEMENT OF GOALS:

The major objectives of the training rotation in Clinical Microbiology are to provide residents with experience in 1) the detection, isolation, and identification of medically important microorganisms and 2) the interpretation and application of microbiology laboratory results. The rotation is designed so that the resident receives hands-on experience in each of the various microbiology disciplines in order to gain the scientific knowledge, bench-level skills, and other resources necessary to understand the operation of a clinical microbiology laboratory. The later stages of the rotation serve to complete, expand, and solidify the resident's knowledge base in diagnostic microbiology and to expose and involve the resident in laboratory management practice, including the methods used for quality control and quality assurance. By providing residents with increasing responsibilities and duties, as their training progresses, the teaching faculty intends to equip the resident with the knowledge, skills, and abilities necessary to successfully direct a clinical microbiology service.

OVERVIEW OF THE TWO MONTH ROTATION

A. Rotate through the routine sections of the laboratory (schedule will be prepared in consultation with the laboratory supervisor and directors). A typical schedule is as follows:
   a. Bacteriology 4 wks
   b. Virology 1 wk
   c. Mycobacteriology 1 wk
   d. Mycology/Parasitology 1 wk
   e. Makeup/Review 1 wk

B. Attend and participate in the following activities:

Activity	Day/Time	Place
Infectious Disease Lab Rounds	Daily 1:30 pm	Room 3808
Infectious Disease Grand Rounds	Tue, 4:00 pm (Sept-Jun)	Suite 304 POB
Infection Control Committee Meeting	First Friday of month, 11:00 am	3430 UH

C. During the first month of the rotation, the resident is expected to spend the majority of their time within the various laboratory sections and in personal study. Once this first month is complete, technologists and/or a director will bring questions and problems to the attention of resident.

D. Training checklists
Training checklists have been prepared as a guide to the resident. It is your responsibility to ensure that you observe or discuss checklist items with either the bench technologist Trainer or a Director. Bench-specific checklists must be signed off prior to completion of the bench rotation. General rotation checklists must be signed off prior to completion of your rotation. Checklists are accessed from: App2 (H:)/PCCOMMON/residents/Micro training checklists.

E. Case studies
1. 2 or 3 clinical cases and associated questions will be assigned to the resident for each bench/section rotation.
2. Cases are accessed from: App2 (H:)/PCCOMMON/residents/Micro cases. Note that some cases are comprised of two separate files.
3. The resident should carefully review/research the case and prepare written responses to the questions.
4. Answers to the case questions are due on Friday (or the last day of the week) of the bench/section rotation. Case assignments are found in the rotation calendar.
5. Email a Microsoft Word document containing your answers to:
    a. Dr. Riddell: Case #'s 1-5, 7, 8, 10, 11, 13-15, 17, and 18.
    b. Dr. Kiska: Case #'s 6, 9, 12, 16, and 19.

F. During the 2nd month of the rotation, the resident will be more actively involved in daily Infectious Disease Laboratory rounds. Present a case using appropriate stain and culture materials; correlate with other laboratory findings, including anatomic pathology when appropriate.

G. Present one in-service or clinical case to laboratory personnel on a topic chosen in consultation with a laboratory director.

H. Primary focus during rotation should be overall laboratory operations, problem solving, and interpretation of results.

I. There is a tremendous amount of information that must be digested for each of the Microbiology sub-disciplines. It is therefore required that you maximize presence and participation in the Microbiology laboratories during your 2-month rotation.

EVALUATION

Residents will be evaluated by the attending faculty as to their base of knowledge during bench work consultations, Infectious Disease Laboratory rounds, and conference presentations. A significant percentage of the rotation evaluation will be derived from attendance and participation in ID Laboratory Rounds. You are expected therefore to attend a minimum of 90% of these rounds.

SPECIFIC GOALS AND OBJECTIVES:

A. Correlate bacteriological results with clinical data.

B. Field and provide clinical consultation for queries involving methods of obtaining cultures, transportation of specimens, and antimicrobial susceptibility testing. Be directly involved in all non-routine provider inquiries and problems.

C. Be responsible for handling clinical microbiology STAT requests (following consultation with the laboratory Director). The information below is to be used by the Pathology resident to guide the decision as to the acceptability of a STAT request:
   1. For SUNY-Upstate **pediatric** inpatients (including Peds ER), any STAT requests are approved through Peds ID. The pathology resident should contact the pediatric ID attending on-call. In most cases, the lab would be notified in advance by Peds ID if any of these tests would be expected to fall onto evening/night shift or on weekends.
   2. For SUNY-Upstate **adult** inpatients (including ER), call the ordering physician to determine whether the STAT request is clinically appropriate using the guidelines below.
   3. If a physician insists that a STAT request be processed but the reason is not clinically sound, refer the issue to a microbiology director. For any requests that are taken to the director level, the pathology resident must provide the director with pertinent patient information, including current therapy, previous test results, and how the STAT request would change patient management.

TEST	TEST OFFERED	STAT APPROVALS
Pneumocystis DFA	5d/wk - day shift 7d/wk for STATs (accepted until 9 pm)	BALs (adults, peds) Endotracheal aspirates (peds)
CMV antigenemia	5d/wk - day shift (specimen must be received by 9 am)	No STATs Weekend requests require director approval.
AFB smear	7d/wk (same day TAT if received by 7 am)	No STATs
Legionella urine antigen	7d/wk - day shift (to 2:30 pm)	No STATs

   4. For any approved STAT request occurring during the evening, night, or weekend shifts, call the next person on the call list that does not have a check by their name (current lists are posted in the Microbiology lab on the file cabinet and in Virology behind the main door). If that person cannot be reached, go down the list in sequence skipping any names that already have checks by them. If no one can be reached, call those who do have checks. Leave messages on answering machines when available but do not wait for the person(s) to call back - continue down the list of names until someone can be reached.

D. Be familiar with indications for seeking microbiologic diagnosis and the proper type of specimen to obtain for different clinical situations. Be able to troubleshoot specimen collection both in terms of improper specimens or requests and assist the physician as to proper specimen collection and transport procedures.

E. Be familiar with staining and culture methods for successful microbial growth and identification of the organisms associated with the clinical disease.
   1. Specimen collection, transport, and storage.
   2. Specimen processing:
      a. Methods of streaking specimens for isolation.

b. Protocol for all cultures: routine, mycology, mycobacteriology, parasitology, and virology.
c. Direct specimen assays – antigen and molecular.
d. Preparation of smears for staining.

2. Media:
a. Ingredients - use and principles of formulation.
b. Nutritive, selective, and differential media.
c. Atmospheric and temperature requirements.

F. Be able to use the equipment needed in microbiologic diagnosis (light and fluorescent microscopes, biological safety cabinet, etc.) and perform all appropriate staining procedures.

G. Be able to read and interpret all microscopic analyses performed in Microbiology, AFB, Mycology, Parasitology, and Virology: Gram, Auramine, Kinyoun, India ink, KOH, FA, Trichrome, Modified Trichrome, Modified acid-fast, iodine, lactophenol cotton blue, and saline wet mounts.

H. Reading of Cultures
Be able to list the primary pathogens and indigenous microorganisms associated with each of the following sample types/anatomic system:
1. Urine -- quantitation.
2. Stool -- specific organisms identified include: *Salmonella*, *Shigella*, *E. coli 0157*, *Campylobacter*, *Aeromonas*, *Plesiomonas, Vibrio*, and *Yersinia enterocolitica*.
3. Respiratory tract
a. Cultures from the nose, nasopharynx, throat, sputum, tracheal aspirate, bronchoscopic samples.
b. Respiratory secretions from cystic fibrosis patients.
c. Culture techniques for *Corynebacterium diphtheriae*, *Bordetella pertussis*, and *Neisseria meningitidis*.
4. Miscellaneous cultures:
a. Cerebrospinal fluid.
b. Body fluids.
c. Wounds, abscesses, etc.
d. Genitourinary tract: routine and *Neisseria gonorrhoeae*.
e. Eye, ear.

I. Identification of microorganisms:
1. Select appropriate media and methods for identification.
2. Distinguish between normal flora and pathogens.
3. Flow charts for gram-positive and gram-negative bacteria.
4. Perform susceptibility tests and interpret results.
5. Correlation of growth and type of organism.

J. Blood cultures: Be familiar with and understand:
1. Proper collection and processing of blood cultures.
2. Proper utilization of blood cultures.
3. BACTEC and other automated blood culture instruments.
4. Non-automated blood culture systems and quantitative blood cultures.
5. Turnaround time for work up of isolates.
6. QA monitoring for blood cultures – contamination rate and percent single-set draws.
7. Prepare, stain, and interpret smears from positive blood culture bottles.

K. Know the procedure for and interpret of results for various antibiotic sensitivity studies and be able to select the method appropriate for specific organisms:

Beta-lactamase	Vancomycin-resistant enterococci
Kirby-Bauer	Pen^r *S. pneumoniae*
MIC	Inducible beta-lactamases
ESBLs	Methicillin-resistant staphylococci
E-test	Vancomycin-resistant *S. aureus*
PBP-latex	D-zone

L. Anaerobes:
1. Observe and participate in identification of anaerobes, including processing and special growth requirements.
2. Unsuitable sample types for anaerobic culture.
3. Methods of identification.
4. Be able to describe main characteristics for the identification of *Clostridium* sp., *Bacteroides fragilis* group, *Fusobacterium* sp., and *Propionibacterium acnes*.
5. Anaerobic susceptibility testing – when to perform, methods, limitations.

M. Understand and be familiar with specimen processing, culturing, and staining of fastidious organisms or those with culture requirements differing from routine bacteriological culture methods including *Legionella*, *Leptospira*, *Bartonella*, and other “atypical” organisms.

N. Parasitology:
1. Specimen collection and preservation.
2. Direct macroscopic and microscopic techniques.
3. Formalin-ethylacetate sedimentation technique.
4. Trichrome stain.
5. Modified trichrome stain.
6. Modified acid-fast stain for *Cryptosporidium/Cyclospora/Isospora*
7. Observe trichrome slides and wet preps of known organisms and be able to identify unknown parasites from trichrome and concentration procedures.
8. EIA for *Giardia* and *Cryptosporidium.*
9. Wright’s Giemsa stain for bloodborne parasites, e.g. *Plasmodium*, *Babesia*, *Trypanosoma*, etc.

O. Mycology:
1. Yeasts:
   a. Distinguish different types of yeast – especially *Candida* and *Cryptococcus* – and the infections they cause.
   b. Media and incubation conditions for fungal isolation.
   c. Select appropriate media and/or methods for identification: assimilation and fermentation, API, Vitek.
   d. Direct detection methods: KOH mounts and cryptococcal antigen.
2. Molds:
   a. Lactophenol cotton blue scotch tape techniques.
   b. Slide cultures.
   c. Septate vs. aseptate hyphae and demateaceous vs. hyaline molds.
   d. Be able to describe the main identification characteristics for dimorphic molds and *Aspergillus* species.
   e. Phaeohyphomycosis.

P. Mycobacteriology:

1. Process specimens.
2. Methods of digestion/decontamination.
3. Perform and interpret acid-fast stains.
4. Interpret culture results and biochemicals.
5. DNA probe identification technology.
6. Antimicrobial susceptibility methods.
7. Learn principles, pros & cons of molecular amplification methods for acid-fast bacteria.
    a. PCR and TMA for *M. tuberculosis* complex.
    b. PCR/RFLP for mycobacterial identification.
    c. 16S and HSP gene sequencing for mycobacterial identification.
    d. Perform and interpret PCR for *M. tuberculosis* complex.

Q. Virology
1. Become familiar with and understand the requirements for proper collection and transport of specimens for all tests performed in the Virology Laboratory.
2. Understand the principles of traditional and shell vial tissue culture.
3. Know what types of cell lines support the growth of the major categories of viral pathogens – Influenza, Parainfluenza, Adenovirus, RSV, Enterovirus, HSV, CMV, VZV.
4. Know what viral pathogens are uncultivable or require specialized procedures.
5. Be able to recognize common patterns of cytopathic effect (CPE).
6. Understand the principle and applications for direct viral antigen detection methods – DFA, Influenza EIA, RSV EIA, Rotavirus EIA, CMV antigenemia
7. Be familiar with the various methods for the detection of *Clostridium difficile* or its toxins – culture, latex agglutination, EIA, cytotoxin assay.
8. Observe and participate in detection of *Chlamydia* by cell culture methods. Learn principles and limitations of methods for detecting *Chlamydia* including cell culture, direct fluorescent monoclonal antibody detection, serology (EIA), and amplification methods.
9. Observe and understand culture methods for the detection of *Mycoplasma* and *Ureoplasma*.
10. Learn principles of molecular assays used in Virology.
    a. Real-time PCR for HSV.
    b. HIV-1 RNA quantitation.
    c. Perform and interpret real-time PCR for HSV.
11. Determine a set of Virology unknowns which will include cytopathic effects and FA stains.

R. Understand the computer so inquiries can be made via the LIS.

S. Review quality control and quality assurance practices performed by the laboratory.

READING ASSIGNMENTS/REFERENCES: Primary references in bold.

A. Reading assignments – all from reference 7:
1. Bacteriology
    a. REI/Plating – Chapter 63
    b. All other benches – Chapters 56, 57, and 58
2. Virology – Chapters 54 and 55
3. Mycobacteriology – Chapter 59
4. Mycology – Chapter 60
5. Parasitology – Chapter 61
6. All rotations – Chapter 62

B. References

1. **Microbiology and Virology Laboratory Manuals**
2. Pertinent microbiology literature
3. Clinical and Laboratory Standards Institute. Methods for Dilution Antimicrobial Susceptibility Tests for Bacteria that Grow Aerobically *and* Performance Standards for Antimicrobial Disk Susceptibility Tests
4. Murray, P. et al., ed. Manual of Clinical Microbiology, 8th edition. American Society for Microbiology; Washington, D.C. 2003.
5. **Forbes, B.A., D. Sahm and A. Weissfeld, ed. Bailey and Scott's Diagnostic Microbiology, 11th edition. Mosby; St. Louis, 2007.**
6. Winn W, et al. Color Atlas and Textbook of Diagnostic Microbiology, 6th edition. J.B. Lippincott; Philadelphia, 2006.
7. **McPherson, RA and MR Pincus eds. Henry's Clinical Diagnosis and Management by Laboratory Methods, 21st edition. Saunders/Elsevier, Philadelphia, 2007**
8. Mandel GL, Douglas RG, Bennett JE, Dolan, R. ed. Principles and Practice of Infectious Diseases, 6th edition. Churchill Livingstone; New York, 2005

C. Electronic Media Resources:
Accessible through any LAN-enabled PC at **App2 on 'Sun_server' (H:)/ PCCOMMON/Micro Training**:

Bacteriology I Image Atlas	Parasitology Image Atlas
inQUIZator – Mycology	The Anaerobe Educator
inQUIZator – Parasitology	Wheel of Bacteriology
Mycology Image Atlas	Wheel of Parasites

MOLECULAR PATHOLOGY

Length of rotation: 1 month required

Teaching Staff:
Antony Shrimpton PhD - Director

A 1-month rotation in Molecular Pathology is part of the resident's core curriculum and will be completed in the 2nd, 3rd or 4th year of training. During this period, residents are expected to familiarize themselves with the principles and performance of, and gain practical experience in the use of, techniques and interpretation of currently performed molecular genetic and molecular oncology tests, and in the management of a Molecular Pathology Laboratory. Residents will also learn basic principles of molecular biology through participation in signing out of genetic and oncologic reports.

Statement of Goals: The goals of the Molecular Pathology rotation are:

1. Acquire a base of knowledge, skills, experience and understanding of the principles and applications of methods used in contemporary clinical testing involving molecular biology applied to genetic and acquired disorders.
2. Attain competency in the science and practice of Molecular Pathology through exposure to the process of applying and interpreting data generated by molecular tests.
3. Acquire the skills, knowledge and understanding of the technical and performance limitations and potential pitfalls inherent in the methodologies employed so as to avoid pitfalls in misinterpretation.
4. Acquire sufficient skills, knowledge and understanding of the process of setting up molecular testing, including validation, bureaucratic and statistical requirements.

Training Objectives of this rotation:

1. By the end of the rotation residents should be comfortable in their ability to interpret results generated using molecular techniques used in clinical laboratory testing, including:
    a. DNA isolation/preparation
    b. Restriction endonuclease digestion of DNA
    c. Gel electrophoresis
    d. Hybridization theory (Southern blot, dot blot, etc.)
    e. Polymerase Chain Reaction (PCR) theory and technique, including real time-PCR.
2. Discuss the general approach for implementing and validating molecular assays for clinical service work meeting Federal and State requirements.
3. Describe and apply the principles and techniques involved in molecular genetics and molecular oncology, including those employed in the Molecular Diagnostics Laboratory as well as elsewhere (qRT-PCR, Luminex, automated DNA sequencing).

Responsibilities:

1. Read general texts on molecular pathology.
2. Familiarize themselves with the principles, tests and equipment. Review Molecular Pathology PowerPoint presentations and take accompanying tests.
3. Perform a molecular mutation detection via PCR analysis for a disease allele on a biological sample (eg. CF Delta 508 detection on their own blood).
4. Spend time with the director to learn the concepts of molecular genetics such as direct mutation analysis versus linkage, etc.
5. Review past cases and evaluate, make preliminary interpretation and present sign-outs to the attending - during the second half of their rotation.
12. To become sufficiently knowledgeable about all tests performed by the section so as to provide consultative activities by discussing appropriate testing with referring clinicians.
13. Research and present at staff meeting, either an interesting case or a potential test for consideration for addition to the service.

Graduated responsibility in this section: As residents become more familiar with the tests, they are better able to help advise in the selection of appropriate molecular testing. A second rotation elective is available and involves the research evaluation and adoption of new molecular diagnostic tests.

CURRICULUM

Tests performed:

Molecular genetics: Cystic fibrosis, Fragile X syndrome, Sickle cell disease, MTHFR, Factor XI deficiency, ∝-1 antitrypsin deficiency, Factor V Leiden, Hereditary Hemochromatosis and Prothrombin 20210G>A.

Molecular oncology: B cell gene rearrangement, T cell receptor gene rearrangement, JAK2 V617F, FLT3-TKD and FLT3-LM.

Molecular techniques are used in other sections, including the core sequencing lab, infectious diseases, cytogenetics (FISH), immunology, etc.

Didactic Lecture Series

Residents should review the Medical Genetics and Oncology PowerPoint lectures.

Wet Lab

Unless residents have a strong molecular background, they will perform PCR on DNA extracted from blood and test it for a common genetic variant (e.g. delta F508, HbS etc).

Core Molecular Pathology Rotation
Throughout the Core Molecular pathology rotation, the resident will attend the following meetings/conferences:

> Molecular Pathology staff meeting, CP Conference Rm, alternate Fridays, 11:00 am
> The resident should also arrange to meet (usually in the afternoons) with the Molecular Pathologist on service each day to review clinical cases; the molecular pathologist on service. The resident need not preview these cases in the first part of the rotation, but in the latter half of the rotation (depending on the resident's proficiency) the resident should arrange to receive and preview these cases prior to looking at them with the molecular pathologist. Note that it is unacceptable to retain cases overnight without notifying the molecular pathologist; if the resident is unable to review the cases prior to the sign-out session, at the molecular pathologist's discretion, the cases may be signed out without preview by the resident.

General reading on Molecular Pathology should include
Thompson and Thompson Genetics in Medicine 6th Edition. WB Sauders
Molecular Diagnostics for the Clinical Laboratorian Ed Coleman WB and Tsongalis GJ
Diagnostic Molecular Pathology. Ed. Debra G B Leonard 2003 WB Saunders

Method of Evaluation
Global Rating of Live or Recorded Performance: A rater judges general categories of ability (patient care skills, medical knowledge, interpersonal and communication skills) and the ratings are completed retrospectively based on general impressions collected over a period of time (end of rotation) derived from multiple sources of information (direct observations or interactions); input from other faculty, lab technicians and residents and review of work products or written materials.

TRANSFUSION MEDICINE

Rotation Length: 2 months

Teaching Staff:
Lazaro Rosales, MD – Director

Philosophy
The philosophy of the Blood Bank/Transfusion Medicine program is excellence in patient care (most cost-effective, efficient and highest quality) as a foundation for graduate medical education and research/scholarly activities. Progressive assumption of responsibility with appropriate supervision at each level and self-directed learning are key to life-long learning and professional career development.

Goals
1. Acquire a broad base of knowledge, skills, experience and understanding in contemporary Blood Banking and Transfusion Medicine (BB/TM).
2. To make good decisions reflecting sound judgment and accountability to patient and patient's physician in the practice of BB/TM.
3. Acquire skills, knowledge and understanding of leadership and management in all aspects of Transfusion Medicine.
4. Acquire proficiency in computer and Internet with competency in communication (access and review information), spreadsheet (i.e. Excel) and database management (i.e. FileMaker Pro and/or Access), as well as PowerPoint.

Objectives

1. At the completion of the program, the fellow should be capable of communicating/assisting clinical colleagues, solving technical and clinical problems that arise day-to-day and be able to offer consultation in hemotherapy (components), progenitor (stem) cell collection/processing, respond to transfusion reactions, alloantibody identification, hemapheresis consultations, contribute to parentage analysis, interface with Bone Marrow/Peripheral Blood Progenitor Cell Transplantation Heme-Onc service and solid organ transplant surgery team, appreciate selection of organ donors (living/cadaver), assessment of waiting list, crossmatch and status of PRAs (percent reactive antibodies) including platelet refractoriness of patients.

   The overall program is designed to provide the trainee with a thorough, comprehensive experience in all aspects of Transfusion Medicine. The ultimate goal of the program is for the fellow, upon completion of training, to have the skills and knowledge necessary to provide direction and support to a Transfusion Medicine Service in its entirety.

2. Attain competency in the science and practice of transfusion medicine to appreciate, anticipate, translate and adapt to change in future science and practice of Transfusion Medicine.

3. Be prepared and able to pursue a career in BB/TM as a physician-scientist, clinician, medical educator, leader/manager oriented to scholarly work with an inquiring mind and commitment to the patient first and foremost.

Duties and Responsibilities

Resident on rotation is to introduce him/herself to the Supervisors of the three main service areas of Transfusion Medicine (Blood Bank, HLA, and Apheresis) on the first morning of the rotation.

Daily:

1. Organize and attend rounds for blood component utilization and sign out of reports at 1330 hours, Monday-Friday.
2. Review the blood component utilization from previous day (and present at 1330 hours in conjunction with the blood component order (BCO) form.
3. Present copy of current day's surgery schedule for review of associated blood component orders to anticipate needs and balance with inventory.
4. Present follow-up reports on queried/interesting cases from prior review and returns versus orders, noting blood returns, in connection with previous day's scheduled surgery list.
5. Present reports for sign-out:
   A. antibody reports (within 24-48 hours)
   B. transfusion reaction reports (within 24-28 hours)
   C. HLA antigen/antibody typing reports (when ready)
6. Review and respond to all pre-transfusion blood product requests and especially pre-admission testing orders (PAT) to ensure compliance with the Guidelines for Ordering Blood regularly when contacted by technologists.
7. Complete Blood Utilization Review (BPUR) forms on the computer for queried cases (on Drive H). Document all interactions with and responses from clinicians regarding blood product ordering.

Blood Bank

1. Take calls from blood bank technologists and respond promptly
2. Schedule Immunohematology Benchwork with the BB supervisor (usually afternoons).

HLA/Tissue Typing Lab

1. Take calls from technologist when contacted
2. Anticipate living donor solid organ transplants
3. Schedule benchwork/demonstration with supervisor after initial month of TM rotation

Apheresis Service

1. Evaluate apheresis requests, obtain consent, ensure that placement of vascular access device is undertaken or has been requested. Evaluate patient and write orders notes in patients' charts (pre-, mid-, post-procedure).
2. Attend pheresis procedures (pre- and post-)

Education

1. Review of blood component utilization and sign out of transfusion reactions form the basis for instruction and teaching in Hemotherapy.
2. Sign-out antibody reports with appropriate review of corresponding blood group system form the basis for teaching in Immunohematology.
3. Review of surgery schedule and evaluation information/communications from ARC form the basis for instruction in blood component inventory management and procurement.
4. Review sign-outs of HLA antigen typing/antibody screen/detection, deceased and living donor and recipient transplantation, and B27 reports are the basis for instruction in Transplantation Medicine.
5. Follow and monitor at least one solid organ transplantation through hospitalization.
6. Participate in progenitor cell infusion for at least one patient.
7. Apheresis education is conducted on site on the Apheresis floor.
8. Follow daily interesting/instructive patients relevant and be prepared to update daily.
9. Hands-on benchwork forms basis of instruction for routine blood bank procedures.

Core Curriculum

SUNY Upstate Medical University

Bench procedures such as serologic tests for hepatitis, AIDS, cytomegalovirus, and syphilis.

Over the initial two months, the fellow learns routine Blood Bank procedures. This part of the training includes performing procedures and review of case studies as examples of problem-solving techniques. The rotation includes:

1. Learn procedures and become proficient in typing, crossmatching and screening for and identifying irregular antibodies of donor and recipient blood.

2. Learn procedures in immunohematology and become proficient in the detection and identification of irregular antibodies, incorporating antibody panels, absorption/elutions procedures, titers, neutralizations, enzymes and pre-warming techniques.

3. Communicate results of crossmatch problems to clinicians and recommend solutions.

4. Obtain relevant clinical information on patients with complicated irregular antibodies and transfusion reactions

5. Meet with the immunohematology technologist and supervisor to review work-ups and prepare reports on antibody and transfusion reactions consultation.

6. Sign-out immunohematology reports with Blood Bank attending or Director BB/TM.

The fellow will be involved in testing of blood samples in our Immunology Laboratory. He/she will become knowledgeable in EIA testing (HBsAg, anti-HBc, anti-HCV, anti-HIV, and anti-HTLV), latex agglutination (CMV antibody), RPR for syphilis testing. There will be a thorough understanding of test result interpretation, as well as quality control issues.

Donor collection (medical history, collection of blood, recruitment of donors, preparation of components).

During the first three months also, the fellow becomes familiar with the steps used to prepare blood for transfusion including pooling products, aliquoting products, irradiation of blood components, thawing frozen components and leukodepletion. Other aspects are covered during the rotation at Red Cross.

Therapeutic apheresis and therapeutic phlebotomy (see the patient and write a consultation note?)

The fellow works in the first month with the attending physician, coordinator and nursing staff to learn about hemapheresis procedures. The rotation is designed to give the fellow increasing responsibility for this service and be prepared to learn in subsequent months from less frequently encountered diseases in patients. Activities include:

1. The fellow will become familiar with all technical procedures of the hemapheresis section including progenitor (stem) cell collections, therapeutic plasma exchange, white cell and platelet reduction, red cell exchange, plasma volume calculation, and fluid balance.

2. Under the direction of the hemapheresis attending, the fellow will achieve proficiency in evaluating hemapheresis patients, writing orders, responding to clinical problems and providing patient management during and between procedures, especially in patient reactions during procedures.

3. Initially, the fellow will remain with the patient throughout the procedure to familiarize herself/himself with all aspects of medical/nursing care.

4. The fellow will assume progressive responsibility for the management of hemapheresis patients and share coverage with the pathologist attending for off-shift therapeutic procedures.

5. Under the supervision of the Nurse Coordinator of the Apheresis Service, the fellow will become familiar with hemapheresis catheter care, trouble shooting, and instrument problem identification and solving.

6. Following completion of his/her training, the fellow will be competent in managing all aspects of hemapheresis therapy both technical and clinical.

7. The fellow will achieve an understanding of the goals, strategies, and problems related to peripheral blood progenitor collection. She/he will interact with the appropriate clinician regarding problems in this area and CD34 cell target attainment.

Transfusion reactions (see the patient, perform the evaluation, write the consultation note?)

The fellow will be involved in transfusion reactions reported to the Blood Bank. His/her responsibilities include:

1. Evaluate acute transfusion reactions. See patients immediately with suspected hemolytic transfusion reactions. Review Blood Bank work-up and request additional studies if indicated.

2. Oversee the Blood Bank resident in performance of the above when resident is on service.

3. Complete transfusion reaction report forms for attending counter-signature within 24 hours.

4. Enter note in patient's chart of preliminary report and any recommended action or follow-up.

5. Make recommendations for use of special components (i.e., filtered, washed cells or premedication).

6. Complete a delayed hemolytic transfusion reaction form on patients who develop an alloantibody or positive direct antiglobulin test within three months of a transfusion.

7. Follow-up suspected cases of post-transfusion hepatitis. Gather necessary clinical and transfusion information and prepare report for Red Cross. Follow-up with Red Cross and attending physician.

8. Gather data for look-back requests and related New York State and FDA as appropriate.

American Red Cross Blood Services, New York/Penn Region Red Cross (Four weeks in Rochester at regional site and at Syracuse Donor and Dispensing Center)

Bench procedures such as serologic tests for hepatitis, AIDS, cytomegalovirus, and syphilis.

Testing for infectious disease markers, with the exception of stat testing for CMV antibody, is done off-site in either Dedham, MA or Detroit, MI. However, the trainee will be exposed to the processes of receipt of test results, updating of applicable computer files for release of blood for labeling and for tracking deferred donors in the donor deferral register and counseling of donors with positive test results.

Donor collection (medical history, collection of blood, recruitment of donors, preparation of components.)

With implementation of autologous blood donations at University Hospital in 2002, Fellow will be active in all stages of such donor blood processing on site. This will be supplemented and complemented through further involvement in all stages of blood collection at the regional Red Cross Center near Rochester and at the Syracuse extension.

This will include the organizing of mobile blood drives, being available for consultation with nursing staff regarding medical history questions, and managing donor reactions. The fellow will interface with the Donor Recruitment Department, and help in recruiting new blood drive sponsors. There are responsibilities in blood component preparation, including the making of packed red cells, platelet concentrates, fresh frozen plasma, cryoprecipitate, cryopoor plasma, leukocyte reduced blood components and donor hemapheresis products with emphasis on platelets. The fellow will become familiar with the methods of washing and freezing red cells. He/she will learn the appropriate indications for the use of the products. Donor hemapheresis emphasizing platelets but also granulocytes will be stressed in all aspects of patient care, collection and processing.

Therapeutic apheresis and therapeutic phlebotomy (see the patient and write a consultation note?)

The fellow will learn the indications and contraindications of therapeutic hemapheresis, will consult with attending physicians, will see and evaluate new hemapheresis patients, and write consultation and progress notes in the patient chart. He/she will gain experience in handling adverse reactions. The fellow will evaluate new therapeutic phlebotomies and, at times, participate in the procedure.

Crouse Hospital (four weeks)

In this special BB/TM environment, the resident/Fellow will learn the following:

1. Pathophysiology of anemia in the unborn and newborn.
2. Laboratory investigation and clinical management of newborn with
    a. Hemolytic Disease of the Newborn and most likely etiology in terms of antibody specificity (ABO vs irregular)
    b. Platelet alloimmunization
    c. Prematurity and iatrogenic anemia with special attention to preservation and transfusion aliquoting.
3. Application, utilization, and preparation for intrauterine transfusion in unborn perinatally and exchange transfusion in newborn.
4. Antibody development/management in pregnant women.
5. Transfusion reactions, nature and prevalence, in newborns and pregnant women.
6. Graft vs. host disease in premature infants and newborns and relation to blood product transfusions.
7. Special blood products and their preparation for premature and newborn infants including CMV negative, HLA matched, leukodepleted, washed erythrocytes and leukocytes and irradiation.

Name of Conference	Frequency	Department Responsible
Blood Bank Conference	2 per month - Tues 0800	Pathology/ TM
Hematopathology Conference	2 per month - Tues 0800	Pathology/Hematology
Hematology-Oncology Conf.	Weekly - Thurs 1100	Medicine
Pathology Research Conf.	2 per month	Pathology
Service Review	Weekly - 1100	Pathology
Management Seminar	10 sessions	Pathology
AABB/ASCP Teleconferences	6 per year - Wed 1300	Transfusion Medicine
Renal Transplant/Dialysis	Weekly – Fri 0800	Surgery/Medicine
Bone Marrow/ Progenitor (Stem) Cell Conf.	Weekly - Weds 1500	Medicine/ Hematology-Oncology

The resident.fellow is expected to attend/participate in all of these conferences on a regular basis during appropriate rotations. With the Director or Associate Director of BB/TM, he/she plays a leadership role for the BB conference by teaching, leading the discussion and providing assistance to the pathology residents and staff. This is also true for the AABB teleconference series.

There are many other conferences sponsored by the department as well as other departments of University Hospital available to the fellow depending, on their interest. Medical Grand Rounds is strongly recommended.

Method of Evaluation

Six Competencies:

1. Medical Knowledge: evaluated in two ways: Chart Stimulated Recall Oral Examination and Portfolios (case logs).

   Chart Stimulated Recall Oral Examination: Patient cases of the examinee (resident) are assessed in a standardized oral examination. The attending physician questions the resident about the case provided, probing for reasons behind the work-up, diagnoses, interpretation of clinical findings, and treatment plans.

   Portfolio: A portfolio will include a log of clinical procedures performed; a summary of the research literature reviewed when selecting a treatment option and statements about what has been learned, its application, remaining learning needs, and how they can be met.

2. Practice-Based Learning & Improvement: evaluated in four ways: Portfolios, Global Rating, Surveys and 360 degree evaluations.

   Portfolio: Please see explanation under Medical Knowledge.

   Global Rating: A rater judges general categories of ability (patient care skills, medical knowledge, interpersonal and communication skills) and the ratings are completed retrospectively based on general impressions collected over a period of time (end of rotation) derived from multiple sources of information (direct observations or interactions); input from other faculty, lab technicians and residents and review of work products or written materials.

   Surveys: Surveys will be distributed to those individuals the resident lectures to (students, nurses, etc). They will address the quality of the lecture, preparation of the lecture, etc.

   360 degree evaluation: An evaluation for the resident on service is completed by superiors, peers, subordinates, technical staff, etc. The ratings are summarized for all evaluators by topic and overall to provide feedback.

3. Interpersonal & Communication Skills: evaluated in two ways: Checklist and 360 degree evaluation.

   Checklist: consists of essential specific behaviors, activities and/or steps that make up a competency component. A check mark indicates that the behavior occurred or options to indicate the completeness or correctness of the action. The forms provide information about behaviors but for the purpose of making a judgment about the adequacy of the overall performance.

360 degree evaluation: Please see explanation under Practice-based Learning & Improvement.

4. Professionalism: evaluated in one way: 360 degree evaluation.

   360 degree evaluation: Please see explanation under Practice-based Learning & Improvement.

5. Systems-Based Practice: evaluated in two ways: Chart Stimulated Recall Oral Examination and 360 degree evaluation.

   Chart Stimulated Recall Oral Examination: Please see explanation under Medical Knowledge.

   360 degree evaluation: Please see explanation under Practice-based Learning & Improvement.

6. Patient Care: evaluated in two ways: 360 degree evaluation and Portfolios.

   360 degree evaluation: Please see explanation under Practice-based Learning & Improvement.

   Portfolios: Please see explanation under Medical Knowledge.

LEARNING RESOURCES

Reference libraries are available in the resident areas and sign-out areas, containing many of the current major resources, and that there is a mechanism is in place to keep the references current through the residency program office.

1. **AP Sign-out library:** Books may only be reviewed in the sign-out room.

2. **Teaching Sets:** Teaching sets are available in both AP and CP. The study sets in AP can be found in the program coordinator's office (2306 WSK)

3. **California Tumor Registry & Seminars**

4. **Check Samples**

RESEARCH AND TEACHING OPPORTUNITIES

The residents are exposed to an environment, which values a scholarly approach to the problems of pathology and disease and are encouraged to participate in this through opportunities for teaching and clinical or basic research. Research projects may develop as a result of pursuing in-depth studies on subjects in which the resident has a special interest, or may emerge during rotations in the various services. Each resident is strongly encouraged to pursue pathology practice and training intellectually, with curiosity and imagination, and, as appropriate, to submit manuscripts for publication during his/her residency training. This is considered a valuable learning experience and an important part of the residency program, regardless of the eventual practice setting for the individual resident. The work may be related to methods development, clinical or basic research, or reviews.

Residents are required to participate in some of the teaching activities of the Department of Pathology. This includes teaching of medical students on elective rotations in Pathology and of fellow residents through presentations at Journal Club and various intradepartmental and intradepartmental conferences.

Teaching Responsibilities
Residents are required to participate in the teaching programs of the department. Residents will assist in teaching the Cytotechnology students.

Presentations at Professional Meetings
Residents are encouraged to present papers or poster sessions at local or national meetings or proceedings of various research or professional societies. Residents will find the annual and semi-annual meetings of the US - Canadian Academy of Pathology, The American Society of Clinical Pathologists, the College of American Pathologists, and other Pathology and Laboratory medical organizations appropriate for most oral and poster presentations (see also Business Leave) to refer to the details about meetings.

PATHOLOGY RESIDENT ELECTIVES

Advanced Surgical Pathology at University Hospital

Requirements - Open to qualified 4th year residents pending approval of the Director of Surgical Pathology

Time Period - One month

Description - Residents will function as junior staff, assuming supervisory duties in the Gross Room and Frozen Section room where they will be responsible for overseeing junior residents and post-sophomore fellows. They will also review microscopic slides with the junior residents. They will sign out all cases referred for consultation (except pulmonary cases) with the attending pathologists, and they will be responsible for organizing the Friday Surgical Pathology slide conference.

Contact - Dr. de la Roza

Forensic Pathology at Medical Examiner's Office

Requirements - Prior rotation through the Medical Examiner's Office and approval by the Chief Medical Examiner.

Time Period - One month

Description - This course will be an expansion of the experience in the field of forensic pathology beyond the "autopsy room". The resident will accompany a forensic investigator to death scenes and community education opportunities. The resident will also spend time at the toxicology, DNA, and criminalistics laboratories. The resident may accompany the Medical Examiners to court to observe expert witness testimony and be present at meetings with attorneys discussing criminal and civil litigation.

The resident will attend the morning and afternoon briefing meetings held Monday through Friday at the Medical Examiner's Office. The resident is free to attend any other routine or emergency meetings held concerning specific cases or topics such as the quarterly law enforcement conference or the monthly child death fatality review team meeting.

Additional responsibilities may include signing out autopsy microscopic slides, performance of forensic autopsies/examinations, or providing written clinical summaries of case files.

Contact - Gloria Holland, Medical Transcriptionist, 435-3163 x 2229
Robert Stoppacher, MD, Chief Medical Examiner

Pulmonary Pathology

Requirements - Open to residents in the 2nd year and beyond.

Time Period - One month

Description - Residents will review outside pulmonary consultation cases each day and discuss them with Dr. Katzenstein. They will also review a teaching slide set of pulmonary diseases as well as all lung biopsy specimens that come through the University Hospital service. They will be expected to read extensively about each disease process. They will present cases at the monthly Pulmonary Conference.

Contact - Dr. Katzenstein

Dermatopathology

Requirements - Open to residents in the 2nd year and beyond.

Time Period - One month

Description - Residents will attend dermatology clinics with Dr. Ramsay Farah and will follow-up on all biopsies that he performs. Those biopsies will be reviewed with Dr. Farah. Residents will also look at skin biopsies from the routine service and review them with Dr. Farah when necessary. The residents will be expected to review skin biopsy immunofluorescence studies with Dr. Tatum. Extensive reading on dermatopathology is expected.

Contact - Dr. Ramsay Farah

Environmental Pathology

Requirements - None

Time Period - One month

Description - Residents and fellows are welcome to participate in many of the ongoing activities in the Environmental and Occupational Pathology Division. In the 2003-2004 year the major activities in which residents and fellows may choose to participate include:

1. Review of Histopathology of Classic and Unusual Env/Occ Lung and other organ diseases.
2. Development of Teaching Set
3. Case reports of Interesting Env/Occ cases
4. Learning about Analytical Electron Microscopy and using Scanning EM facilities in the Department to study tissues or other materials of
   Contact - Dr. Jerrold Abraham [abrahamj@upstate.edu]

Eye Pathology

Requirements – Open to residents in the 2nd year and beyond, or at least 6 months of Anatomic Pathology.

Time Period - One month

Description - Residents will participate in gross examination of new ocular specimens under the dissecting microscope, directions for their processing and subsequent microscopic diagnoses. Review of ocular region tumors and ocular disease processes that commonly come to a general pathology laboratory will form the core of the elective, using our many teaching sets. Residents may choose a subject for concentration if desired, and could develop a small set of teaching slides or photomicrographs for later reference or use in lectures.

Analysis of selected portions of large research data as part of Syracuse study of Indoor Environmental Factors and Inner City Asthma.

Env/Occ projects of interest

Investigation of Env/Occ exposures in 'idiopathic' interstitial lung disease.
Investigations of Fine and Ultrafine Air Pollution Measurements and links to health effects.

NOTE: This elective rotation is best suited for Residents/Fellows enjoying independent research.

Contact - Dr. Ann Barker-Griffith

RENAL PATHOLOGY

Length of rotation: One month

Teaching Staff:
Paul F. Shanley, MD, Director of Nephropathology
Arthur Tatum, MD, PhD

Goals

1) **Acquire** a broad base of medical knowledge, skills and experience in renal pathology. Seeks new information and attempts to **apply** it. Seeks and critically **appraises** new information in improving their fund of knowledge and understanding of disease mechanisms.
2) **Analysis** and **synthesis** of clinical data. Ability to **formulate** differential diagnoses and rationale.
3) **Demonstrate** the ability to provide appropriate and effective consultation in collaborating with other clinicians, namely nephrologists.
4) Become capable of **accessing** the role of the diagnostic techniques of light microscopy (LM), immunofluorescence (IF) and electron microscopy (EM) in clinical decision-making, particularly in relation to renal biopsies.

Objectives

By the end of the rotation, the resident should be able to:

1) **Conduct** effective medical communication with clinicians regarding the interpretation of biopsy results.
2) **Participate** in realistic problem-solving through participation at monthly conferences and in exchanges with clinicians.

3) **Discuss** the language of renal medicine *at least* at the level represented in general pathology textbooks such as Robbins & Cotran Pathologic Basis of Disease. (It is suggested that the kidney chapters in these books be reviewed prior to starting the rotation).

Duties/Responsibilities
The main task of the resident is to participate in the processing and signing out of current cases on the service.

The responsibility with respect to current cases includes:

2) Examination of gross tissue submitted using the dissecting microscope
3) Initial evaluation by light microscopy (LM)
4) Evaluation of immunofluorescence (IF) studies
5) Review of electron microscopy (EM) results
6) Study and investigation in specialty textbooks and current literature in relation to the problems raised by the cases

In addition to the current cases, the resident will:

7) Work through study sets of prototype kidney disease cases that will be provided
8) Spend time learning the operation of the transmission electron microscope (EM)
9) Communicate with and assist clinicians from other departments with regard to analysis of biopsy results
10) Attend weekly renal conferences on Tuesdays at 4 p.m. and participate in the Renal Pathology conference given on the 4th Tuesday of the month

Methods of Evaluation
1) Evaluation of residents by faculty members is carried out via use of the "E*value" program commercially available in the Department of Pathology. This system prompts electronic evaluation at the end of each rotation. E*value is based on the six competencies of the ACGME Outcomes Project. The Program Director monitors these comments on a regular basis, and reviews them with the residents at each formal evaluation session. Each formal evaluation document also includes suggestions by the Director for improvement, which is then monitored at the next session. The Director creates a final evaluation of each resident who completes the program. This is maintained in a permanent record.

2) To assure quality in training and to comply with requirements for residency accreditation, an *online interactive case module* was developed to evaluate the resident's achievement of stated educational goals and to benchmark progress in Renal Pathology training.

Perinatal Autopsy

Requirements - None

Time Period - One month, part time (this rotation must be combined with another rotation)

Description - Residents will perform pediatric (mainly neonatal) autopsies at Crouse Hospital under the supervision of Dr. Larry Gordon. They will be expected to dictate the gross findings, provide a preliminary diagnosis, review the microscopic slides, and dictate microscopic descriptions and final diagnoses in a timely fashion. They will present the findings at conferences when indicated. They will also cut in all placentas on Mondays and read them with Dr. Gordon on Tuesdays.

Contact - Dr. Larry Gordon

Outpatient Biopsy Service/GYN Pathology/Cytology

Requirements - Open to residents in the 3rd and 4th years.

Time Period - One month

Description - This elective takes place in ClearPath Diagnostics, a free standing private laboratory located at 600 E. Genesee Street. Residents are exposed to a busy outpatient biopsy and cytopathology service. They also have the option of reviewing outside GYN consultation cases that are sent to Dr. Mazur.

Contact - Dr. Michael Mazur

Research (Molecular Biology)

Requirements – Open to residents in the 2nd year and beyond.

Time Period – At least 3 months.

Description – This is an opportunity for residents to learn current molecular biology techniques in detail in a busy research laboratory. It entails hands-on laboratory bench work. Interested residents may be able to become involved in a specific ongoing project. Support is available from the Pathology
Department for resident research projects.

Contact - Dr. Eileen Friedman

Research (General)

Time Period - variable, at least one month

Description - Residents have the opportunity to undertake research projects with any staff member of Pathology or another department. It may be either clinical or laboratory research. Residents must have a specific project and will be expected to present their findings at a Pathology Grand Rounds conference when finished. Residents must have approval of the Residency Director.

CLINICAL PATHOLOGY ELECTIVES

Requirements - Electives in Clinical Pathology are available to those who have completed the basic requirements of a respective laboratory section.

Time Period - These are usually of one to two months duration but may be longer with consent of the chief of the service and/or sponsoring faculty member.

Advanced Flow Cytometry

Description - Residents will work with Dr. Gonchoroff and study the clinical and research applications of Flow cytometry. These include multiparameter analysis utilizing

clinical and LSR level research instrumentation, development of new disease testing algorithms, standard and high speed cell sorting, and interaction with basic research faculty and staff. Topics are flexible by arrangement with Dr. Gonchoroff.

Contact - Nick Gonchoroff, PhD

Immunopathology Research:

Description - Residents will work with Dr. Tatum on research project such as:

1. Proteomic analysis 2D gel electrophoresis and MALDI-TOF (Matrix-Assisted Laser Desorption Ionization -Time of Flight) mass spectroscopy to identify antigens in Immune Complex glomerulonephritis and correlate them with circulating immune complexes isolated from serum of patients with membranous glomerulopathy and IgA nephropathy.
2. In vivo and vitro inhibition of antiDNA antibodies with sulfated polysaccharide antigens using and in vivo model of experimental murine SLE. A component of Electron Microscopy may also be included if indicated.
3. In vivo and vitro inhibition of anti-axonal and neurofilament antibodies with sulfated polysaccharide antigens.
4. In vivo modification of murine immune complex glomerulonephritis in apoferritin serum sickness in collaboration with Bristol.

Contact - Arthur Tatum, MD, PhD

Informatics:

Description - Interested residents will work with Dr. Woo to develop educational and practical applications of data-base driven web pages utilizing image banks, clinical case scenarios, virtual microscopy and interactive applications. They may elect to develop case collections for specific disciplines or any organ specific or disease specific image modules. When done, they will become part of the Pathology Department Case and Image collection.

Contact - Jannie Woo, PhD

Advanced Hematopathology:

Description - Residents will work with Dr. Hutchison or Dr. Banki to review clinical case series of lymphoma (such as pediatric lymphoma from the Children's Oncology Group) or leukemia. Test development in Hemostasis/Thrombosis may also be pursued.

Contact - Robert Hutchison, MD

Molecular Diagnostics:

Description - The resident will participate in the development and evaluation of new tests.

Contact - Antony Shrimpton, MD

Transfusion Medicine:

Description - Advanced Transfusion Medicine provides a general or focused opportunity to

provide direct and consultative patient care service and also research depending on time available in Blood Banking, Hemapheresis, HLA, Progenitor Cells and Transplantation

Contact - Lazaro Rosales, MD

FELLOWSHIP PROGRAMS

CYTOPATHOLOGY FELLOWSHIP

Kamal K. Khurana, MD - Director

Structure of Program
SUNY Upstate Department of Pathology is the principal location for the 12-month training period. Although Cytopathology is a distinct section within Anatomic Pathology, there is ample opportunity to access information, material and expertise from other areas within the Department of Pathology as well Upstate Medical University. Emphasis is placed on the correlation and integration of surgical pathology with all aspects of cytopathology. In addition, the importance of ancillary studies such as immunochemistry, flow cytometry, and cytogenetics is also recognized. As a result, the fellow has frequent interaction with staff and fellows in hematopathology, neuropathology, immunopathology, microbiology, and molecular diagnostics during the diagnostic workup of fine needle aspiration biopsies. In addition, the fellow is encouraged to attend and participate in a variety of interdisciplinary conferences that will enhance his/her fund of knowledge. A pathology based Fine Needle Aspiration Service is incorporated within the Section of Cytopathology. This FNA Service allows the fellow to actually perform fine needle aspiration and directly interact with clinical colleagues as a consultant. In addition to learning FNA techniques, staining and interpretation, the fellow is also taught how to originate and manage an FNA Service.

There are no distinct cytopathology/surgical pathology rotations, rather the trainee is expected to participate in all aspects of cytopathology and the allied sections under the guidance of the attending cytopathologist on service. As indicated above this fellowship is based on an apprentice-mentor system. However, the training program is somewhat flexible depending upon the individual's prior training and specific goals. Formal rotations (not to exceed a total of 6 weeks) as well as individualize didactic/practical instruction can be arranged with the consent of the involved faculty. Specific "hands on" training is available as rotations in the following laboratories:

1. Immunopathology: learn the principles and basic techniques of immunochemistry as applied to histopathology and cytopathology. (A. Katzenstein, MD and R. Hutchison, MD, Directors)
2. Molecular Diagnostics: learn the principles of various techniques (gene rearrangement, in situ hybridization, polymerase chain reaction) with practical application in the PCR laboratory. (S. Zhang, MD, T. Shrimpton, PhD, and C. Stein, PhD).
3. Flow Cytometry: learn the principles of image analysis and various applications of flow cytometry and cell sorting with emphasis on lymphomas. (N. Gonchoroff, Dr. Ph., Director).
4. Electron Microscopy: learn the techniques involved in transmission and scanning electron microscopy and develop practical expertise with TEM by analysis of aspiration biopsy samples. (A. Tatum, MD, PhD and Steve Landas, MD). In addition, as the trainee progresses and more responsibility is assumed, the trainee will function at the level of junior staff. The responsibilities of the fellow during this period are indicated below.

Service
The fellow will be responsible for reviewing all abnormal cytology cases and will diagnose both surgical and cytology cases with an attending pathologist during daily sign out. There will be instruction in the technique of fine needle aspiration biopsy (FNAB); the fellow is responsible for

performing this technique on patients referred to surgical and cytopathology under appropriate supervision. In addition, the fellow will learn to assist the radiology staff during the performance of aspirations under CT, fluoroscopy, and ultrasound. The fellow will learn cytopreparatory techniques that will allow preparation and staining of aspirate smears and the fellow will learn to render a preliminary diagnosis at the time of FNAB. Intraoperative consultations (gross interpretations and FNAB) will be performed under the supervision of an attending pathologist.

In addition, the fellow will be responsible for the accession and review of all cytopathology consult cases and any surgical pathology consult cases during their rotation and all consult cases (both surgical and cytopathology) of the Director of Cytopathology. The fellow is responsible for obtaining the appropriate clinical information on both in-house and consult cases. The fellow will then present these cases to the attending pathologist or the Director of Cytopathology. Because many of the FNAB's are preformed in surgery/oncology clinics, the fellow will have the opportunity to examine patients and see various cancers and treatment effects in conjunction with oncology staff and residents of the Departments of Medicine and Surgery. In addition, the immediate interpretations provided by fine needle aspiration biopsy allow the Cytopathology fellow to directly participate in the patient management.

Teaching

The fellow will receive direct teaching sessions from the attending staff during daily sign out and will review difficult or interesting cases with the Director of Cytopathology. The cytotechnologists also participate in the training of fellows. They are available to discuss cases they have screened. The fellow also has the opportunity to attend various review sessions/workshops presented to the cytotechnology students by the SUNY Upstate Cytopathology Laboratory as well as cytotechnology affiliates. These informal and structured didactic sessions are supplemented by the required conferences listed on page 4.

The fellow is required to attend and participate in the didactic specialty surgical and cytopathology conferences (1 every month) and the surgical pathology unknown conference (1/week). In addition, the Department sponsors a monthly Pathology Rounds and a Research Seminar that provides greater diversification in Pathology education. The fellow is also required to attend the monthly administrative lab meetings – to gain management experience. These meetings will be supplemented by practical instruction in laboratory management and quality control and assurance by the Director as well as the Supervisor of the Cytopathology Laboratory.

The fellow has primary responsibilities in the Cytopathology conference. The fellow will attend weekly oncology conference (tumor board) as needed. Specific cases are selected by the oncology service. Prior to this conference, the cases to be presented will be reviewed with staff (Drs. Khurana and de la Roza). During the conference the fellow will review all relevant cytopathology and conclude with a brief clinicopathologic discussion. The fellow will also be responsible for the organization and implementation of a one-hour, monthly cytopathology conference for residents, cytotechnologists and interested staff. This may include presentation of interesting or unknown cases, selected topics or didactic sessions. Once the fellow selects the format of the particular conference the Director will assist the fellow as necessary to select the cases and review the cases/kodachromes prior to the conference. The Director will be present during the conference. The Director and cytopathology staff will also present 1 conference every month which may include unknown cases. The fellow is expected to attend this conference or didactic lectures.

The fellow will supervise and function as a consultant for the first and second year pathology residents as well as any surgical residents, gyn residents, or medical students in training during their rotation on surgical and/or cytopathology. The fellow will also act as a consultant and primary reviewer for pathology residents rotating on cytopathology. The fellow will also be responsible for teaching residents the fundamentals of cytopathology as it relates to neoplastic and preneoplastic

conditions. In addition, the fellow will assist in preparing and presenting lectures to undergraduate students in the School of Cytotechnology on various topics as deemed appropriate by the Medical Director.

Research
The fellow will have the opportunity to investigate any one of a number of research projects during the year and will have the opportunity to learn and use a variety of research tools/techniques such as flow cytometry, electron microscopy, immunochemistry, molecular diagnostic techniques, and polymerase chain reaction (PCR). The fellow will be assigned a small project under the supervision of a staff member or may elect to pursue at least one Clinico-pathologic project of choice. The fellow will be strongly encouraged to submit the results of the research for presentation at a national meeting as well as for publication. The fellow will be given departmental support to attend and present at these meetings. In addition, the fellow will learn photomicrography and the techniques of scientific writing and oral presentation.

Administrative Experience
The fellow is involved in the activities (management, QA etc.) during his/her entire training program. The fellow learns how to initiate an FNA program and the latest government and state mandated regulations by participating in the monthly QC and QA activities of the Cytopathology laboratory. Specifically the fellow reviews all cyto/surgical pathology correlations monthly for the QA report; his/her evaluations are then reviewed by the Director and Laboratory Supervisor before finalization. The fellow is encouraged to handle clinician interactions, both concerns/complaints that involve Cytopathology. These interactions are monitored by the Director either by prior or subsequent discussion - depending on the level of responsibility attained by the fellow and/or the severity of the problem. The fellow attends Laboratory meetings where he/she encounters the problems and concerns of the staff in a "working" Cytopathology Laboratory. Management seminars, predominantly in July and August, are provided for residents and staff.

Evaluations
Written evaluations of the fellow are solicited from each attending on a semi-annual basis using a standardized form. The program director discusses the overall evaluation with the trainee bi-annually.

Trainees are asked to evaluate each rotation using a standard form or a computerized evaluation form. Trainees are also regularly given feedback by attendings concerning their strengths and weaknesses.

The program director also encourages the trainee to comment formally on the value of each part of the program in the evaluation form. Fellow also evaluates the faculty in the evaluation form. The suggestions are considered by the faculty and implemented insofar as they are feasible and will improve the program.

HEMATOPATHOLOGY FELLOWSHIP

Katalin Banki, MD - Director

Goals and Objectives
Our objective is to enable the trainee to become well trained in laboratory hematology, morphologic hematology, and laboratory investigation. The emphasis is placed on providing a stimulating environment in which the trainee learns from case material as much as possible. Ancillary reading is emphasized, and instruction from attending pathologists focused initially on case material is aimed at guiding the trainee to become an effective independent learner. Trainees develop their teaching skills by assuming responsibility and teaching pathology residents and medical students.

They develop clinical sensitivity and knowledge through their interactions with clinical physicians, reviewing current case problems and planning and participating in joint conferences. Patient histories are taken in Special Hematology/Coagulation for referring physicians.

Statement of Overall Program Duration

The fellowship is designed for a one-year period. The year is primarily devoted to acquiring skills in morphology and laboratory hematology. The trainee interacts closely with other trainees in the AP/CP residency program and provides first back up to residents on call for hematology problems. Trainees are encouraged to participate in autopsy, surgical pathology, and other specialized pathology conferences. The teaching schedule is extensive with at least one program on most days of the work weak. The trainee participates in hematologic consultations with all sections of pathology (autopsy, surgical, renal, neuro, immuno, cytology, blood bank, molecular, etc.) A "Service Review" conference on Mondays covers all aspects of Clinical Pathology. During the fellowship, the trainee is also encouraged to take one or two months of training in clinical hematology/oncology. Trainees are funded on University Hospital salary lines.

The hematology training program has evolved over time to increase the emphases on immunophenotyping and on correlations with molecular and cytogenetic studies. This trend parallels a similar movement in Hematopathology in general, augmenting rather than replacing traditional assays.

In order to cover systematically the component disciplines of laboratory hematology, the program is outlined as follows:

Basic laboratory hematology, ongoing throughout the year: learn clinical hematology laboratory operation and management, including quality control, methodologies, troubleshooting, reviewing abnormal blood films, and interfacing with clinicians on laboratory problems.

Bone marrow laboratory, 3-5 months: Examine patient specimens of bone marrow and blood, write reports with interpretations, and sign out cases with the attending hematopathologist; learn cytochemistry methods and interpretations; serve as liaison with clinical hematologists.

Cell marker laboratory and lymph node pathology, 2-3 months: Learn techniques of flow cytometry and immunocytochemistry in order to determine cell phenotypes in blood marrow and lymph node specimens; examine lymph node sections; write descriptive reports and interpretations; correlate cell marker studies with morphology; sign out cases with attending hematopathologist; review molecular study results and serve as liaison with clinical hematologists.

Special hematology, coagulation, and hemostasis, 2-3 months: Learn laboratory methods used in the diagnosis of thalassemia and hemoglobin disorders, hemolytic anemias, thrombotic and hemorrhagic disorders; interview patients; interpret data from patient studies; write consultation reports; sign out cases with attending hematopathologist; serve as liaison with clinicians.

Cytogenetics and Molecular diagnostics, 2 months: Learn basic techniques of Karyotyping, FISH & PCR as they relate to Hematology; correlate with morphology and immunophenotype. Present a teaching seminar.

Research and/or Electives

Research or Electives, 1-2 months: Options include: a concentration in one of the above areas to further develop skills; engaging in investigations in one of the above areas in collaboration with one of the attending hematopathologists or other scientists; planning and beginning a research project, under the guidance of a faculty member.

Core Curriculum

Bone Marrow Aspirates/Biopsies: Initially, trainees are instructed in collection of bone marrow specimens, slide making, and performance of Wright and peroxidase stains. During the first week, they are evaluated and/or instructed in peripheral blood and bone marrow differential counting by the technical supervisor. Marrows are assigned to trainee and resident on alternating basis. Peripheral blood (200 cell) and bone marrow (500 cell) differentials are performed, CBC analyzed, all cell lines examined and described on Wright stain. Cytochemistries are ordered, evaluated and counted as appropriate. Biopsies and clot sections are examined and special stains (and immunocytochemistries) obtained. For each aspirate there is an accompanying biopsy or clot section that is reviewed at the same time. Ancillary studies are also coordinated (cytogenetics, flow cytometry, molecular studies, etc.). The trainee writes up the case, formulates a diagnosis and presents to an attending at multiheaded microscopes. With experience, the trainee gradually increases in responsibility for cases, assists supervision of residents, and gains some independence, although attendings must review all cases and decisions.

The trainee is expected to perform at least three procedures (usually 6-10) if previous experience during residency training is not documented. Routine bone marrow procedures are performed by the clinical services. Arrangements have been made, therefore, for trainees to spend elective time at the Regional Oncology Center (outpatient) to see patients and perform procedures, or, alternately, to elect a rotation in inpatient hematology/oncology.

Lymph Node Biopsies: Trainees on-service review all lymph nodes from anatomic pathology in consultation with the AP resident and attending. They are consulted at the time of gross specimen submission regarding processing for paraffin sections, flow cytometry, molecular studies etc. These and all outside consultations, as well as peripheral blood and bone marrow submitted for immunophenotyping are evaluated and described. Special studies are ordered and interpreted. A diagnosis is made and the case is reviewed with the attending.

The trainee, when on the service, is responsible for evaluation of all cases, supervises and assists in technical work (processing, staining, obtaining special studies) evaluation of histology, flow cytometry and molecular studies, and formulates a diagnosis.

Cytochemistry, Immunochemistry, Flow Cytometry, Molecular Biology: Cytochemistries are usually performed in the Bone marrow/Peripheral blood morphology service. Immunochemistry and flow cytometry are part of hematopathology/Immunophenotyping. Trainees are responsible for screening incoming cases, suggesting appropriate studies, including immuno- and cytochemistry, gene rearrangement and cytogenetics, selecting blocks and specimens, and deciding flow panels in consultation with the referring clinician and the attending hematopathologist. The trainee then scores each immuno/cytochemical smear, reviews graphs of dual-labeled flow cytometry and generates a written report that will be signed out with the attending. The trainee informally reviews molecular studies of hematology cases.

General Hematology: The trainee attends regular staff meetings of the hematology section and core laboratory along with pathology attendings and technical coordinators. Trainees have full knowledge of regular operational issues and may be assigned tasks to solve ongoing problems. Unexpected differential findings or other results of potential clinical importance is presented to the trainee who confirms and reports the findings to the clinician.

Coagulation: The trainee is responsible for coordinating the entire coagulation consultation, in conjunction with the attending pathologist. This includes initially assessing history from the patient and /or referring physician, and formulating a testing strategy, following the test result development--including making alterations of the test strategy based on unanticipated results,

organization of the test results, formulation of a diagnosis/recommendations, finalization of a report, and often direct communication back to the referring physician.

Red Cell Disorders: The trainee follows the same sequence of steps as described above for coagulation. The trainee indeed reviews the peripheral smear, HPLC, electrophoretic, RBC enzyme, and all other specialized assays. The trainee actively compares any unusual patient results with the biomedical literature in the process of writing up the case. All special hematology reports are first written by resident then signed out with attending pathologist.

Cytogenetics: One month required, within the cytogenetics laboratory of the Department of Pathology, under Dr. Constance Stein. Cytogenetic test requests and correlation of results are incorporated into bone marrow and lymphoid tissue examinations.

Molecular Diagnostics: One month required. While on Hematopathology rotations, the trainee correlates molecular pathology results that may pertain to the hematology patient. For example, all Factor V Leiden patient results are reviewed at the time of Special Hematology sign-out of that patient. Similarly T- and B-cell clonality assays are reviewed in the context of bone marrow, lymph node or other examinations.

Educational: The trainee, with increasing level of experience, has a graduated responsibility to assist, supervise and instruct residents accompanying them on their hematology services. He/she is responsible for orientation and basic training of new residents on the service. On-call residents attempt to contact the hematology trainee, whenever a difficult hematology problem should be solved.

The trainee schedules and contributes to bi-weekly Hematopathology seminars for residents. Trainees present at least two seminars during their one-year fellowship.

Trainees participate in medical student instruction including preparation for and participation in laboratory session and evaluation of student performance.

Required Conferences:

Name of Conference	Frequency
Service Review/Associates Meeting	Monday (weekly) 11:00 a.m.
Hematopathology	Tuesday (q.2.w.) 8:00 a.m.
Hematopathology/Clinical Hematology Oncology	Thursday (weekly) 10:00 a.m.
Medical Grand Rounds (selected)	Thursday (weekly) 10:00 a.m.
Autopsy Conference (selected)	Wednesday (weekly) 8:00 a.m.
Pathology Rounds/ Pathology Research Seminar	Wednesday (monthly) 12:00 p.m.
Pediatric Grand Rounds (selected)	Wednesday (weekly) 9:30 a.m.
Pediatric Hematology	Thursday (biweekly) 4:00 p.m.

Hematopathology: All CP residents and Hematopathology trainees study the designated case material (blood, bone marrow, lymph nodes, laboratory data, etc.) And some are asked by the conference leader to discuss their observations and interpretations. The conferences are coordinated by attending hematopathologists and the hematopathology trainees.

Hematopathology/Clinical Hematology Oncology: The clinical hematologists/oncologists present the clinical findings, and the clinical pathology resident or trainee who is responsible for the case then presents the pathologic findings. He or she demonstrates the significant abnormalities in the blood, marrow or nodes using a microscope with a video camera linked to a television monitor, and physicians and attending pathologists discuss the diagnostic features. The therapeutic issues are discussed by the clinical hematologists/oncologist.

In addition, hematopathology trainees are expected to attend CP service Review, selected autopsy conferences, pathology rounds, and pathology research seminar. Other conferences are optional.

Evaluations

Written evaluations are solicited for each rotation and at least quarterly from the hematopathology faculty who have worked with the trainee. A standardized form is used. A computer-based test assessment is in development. The program director discusses the overall evaluation with the trainee bi-annually.

Trainees are asked to evaluate each rotation using a standard form. Trainees are also regularly given feedback by attendings concerning their strengths and weaknesses following conference presentations.

The program director also encourages the trainee to comment informally on the value of each part of the program. The suggestions are considered by the faculty and implemented insofar as they are feasible and will improve the program.

SURGICAL PATHOLOGY FELLOWSHIP

Program Demographics:

Name of Host Institution: SUNY Upstate Medical University
Program Specialty/Subspecialty: Anatomic Pathology/Surgical Pathology
Program Address: 750 East Adams Street, Syracuse, NY 13210
Program Phone Number: (315) 464-7125
Program Fax Number: (315) 464-7130
Program E-mail: delarozg@upstate.edu
Program Director: Gustavo de la Roza, M.D.

Introduction:

History: The Surgical Pathology Fellowship has been in existence since 1974 with one to two individuals per year. Recent graduates have gone on to both private practice and academic positions.

Duration: 1 year

Prerequisite Training/Selection Criteria: Three years of AP or 4 years of AP/CP are required.

Goals and Objections for Training:

- Increase knowledge of general Surgical Pathology.
- Become confident with frozen section diagnoses.
- Enhance teaching skills by supervising medical students and junior residents and presenting resident teaching conferences.
- Become familiar with use of ancillary techniques (immunohistochemistry and molecular techniques) in biopsy diagnoses.
- Perform an in-depth study in a subspecialty area of Surgical Pathology with potential for publication.

Resources:

Teaching Staff:
Anna-Luise Katzenstein, M.D., Director of Anatomic Pathology, Professor of Pathology
Gustavo de la Roza, M.D., Director of Surgical Pathology, Associate Professor of Pathology
Ola El-Zammar, M.D., Assistant Professor of Pathology
Steve K. Landas, M.D., Professor of Pathology
Kamal Khurana, M.D., Director of Cytopathology, Professor of Pathology
Sanjay Mukhopadhyay, MBBS, M.D., Assistant Professor of Pathology
Alfredo Valente, M.D., Assistant Professor of Pathology
Shengle Zhang, M.D., Director of Special Procedure Laboratory, Assistant Professor of Pathology

Facilities: All rotations will be administered in the Department of Pathology at SUNY Upstate Medical University.

Educational Program:
The surgical pathology division accessions approximately 14,000 cases annually. The material comprises a wide spectrum of interesting cases covering all specialties including bone, breast, GI, Obs-Gyn, pulmonary, hematopathology and soft tissue. Both neoplastic and non-neoplastic diseases are well represented, and there is also a busy pulmonary pathology outside consultation service. The diagnostic service is supported by an active immunohistochemistry laboratory and a state of the art molecular diagnostics laboratory.

The fellow duties will include cutting in daily Surgical Pathology cases and signing them out with an attending staff pathologist, performing frozen sections under the supervision of a staff pathologist, supervising residents and medical students in the Gross Room, organizing cases for the weekly Surgical Pathology slide conference, presenting cases at inter-departmental conferences (Oncology Conference, GI Conference, Breast Conference, etc.), and reviewing and diagnosing outside referral cases with an attending pathologist. The fellow will also present two resident teaching conferences covering assigned surgical pathology topics. Two months will be available for research and/or subspecialty rotation.

Evaluation:
The fellow is evaluated by attending pathologists following each rotation. The evaluations and the fellow's progress are formally reviewed with the Program Director after six months and at the end of the fellowship.

TRANSFUSION MEDICINE

Lazaro Rosales, MD – Director

Philosophy
The philosophy of the Blood Bank/Transfusion Medicine program is excellence in patient care (most cost-effective, efficient and highest quality) as a foundation for graduate medical education

and research/scholarly activities. Progressive assumption of responsibility with appropriate supervision at each level and self-directed learning are key to life-long learning and professional career development.

Goals

1. Acquire a broad base of knowledge, skills, experience and understanding in contemporary Blood Banking and Transfusion Medicine (BB/TM).
2. To make good decisions reflecting sound judgment and accountability to patient and patient's physician in the practice of BB/TM.
3. Acquire skills, knowledge and understanding of leadership and management in all aspects of Transfusion Medicine.
4. Acquire proficiency in computer and Internet with competency in communication (access and review information), spreadsheet (i.e. Excel) and database management (i.e. FileMaker Pro and/or Access), as well as PowerPoint.

Objectives

1. At the completion of the program, the fellow should be capable of communicating/assisting clinical colleagues, solving technical and clinical problems that arise day-to-day and be able to offer consultation in hemotherapy (components), progenitor (stem) cell collection/processing, respond to transfusion reactions, alloantibody identification, hemapheresis consultations, contribute to parentage analysis, interface with Bone Marrow/Peripheral Blood Progenitor Cell Transplantation Heme-Onc service and solid organ transplant surgery team, appreciate selection of organ donors (living/cadaver), assessment of waiting list, crossmatch and status of PRAs (percent reactive antibodies) including platelet refractoriness of patients.

   The overall program is designed to provide the trainee with a thorough, comprehensive experience in all aspects of Transfusion Medicine. The ultimate goal of the program is for the fellow, upon completion of training, to have the skills and knowledge necessary to provide direction and support to a Transfusion Medicine Service in its entirety.

2. Attain competency in the science and practice of transfusion medicine to appreciate, anticipate, translate and adapt to change in future science and practice of Transfusion Medicine.
3. Be prepared and able to pursue a career in BB/TM as a physician-scientist, clinician, medical educator, leader/manager oriented to scholarly work with an inquiring mind and commitment to the patient first and foremost.

Duties and Responsibilities

Resident on rotation is to introduce him/herself to the Supervisors of the three main service areas of Transfusion Medicine (Blood Bank, HLA, and Apheresis) on the first morning of the rotation.

Daily:

1. Organize and attend rounds for blood component utilization and sign out of reports at 1330 hours, Monday-Friday.
2. Review the blood component utilization from previous day (and present at 1330 hours in conjunction with the blood component order (BCO) form.
3. Present copy of current day's surgery schedule for review of associated blood component orders to anticipate needs and balance with inventory.
4. Present follow-up reports on queried/interesting cases from prior review and returns versus orders, noting blood returns, in connection with previous day's scheduled surgery list.
5. Present reports for sign-out:

A. antibody reports (within 24-48 hours)
B. transfusion reaction reports (within 24-28 hours)
C. HLA antigen/antibody typing reports (when ready)

6. Review and respond to all pre-transfusion blood product requests and especially pre-admission testing orders (PAT) to ensure compliance with the Guidelines for Ordering Blood regularly when contacted by technologists.
7. Complete Blood Utilization Review (BPUR) forms on the computer for queried cases (on Drive H). Document all interactions with and responses from clinicians regarding blood product ordering.

Blood Bank

3. Take calls from blood bank technologists and respond promptly
4. Schedule Immunohematology Benchwork with the BB supervisor (usually afternoons).

HLA/Tissue Typing Lab

4. Take calls from technologist when contacted
5. Anticipate living donor solid organ transplants
6. Schedule benchwork/demonstration with supervisor after initial month of TM rotation

Apheresis Service

3. Evaluate apheresis requests, obtain consent, ensure that placement of vascular access device is undertaken or has been requested. Evaluate patient and write orders notes in patients' charts (pre-, mid-, post-procedure).
4. Attend pheresis procedures (pre- and post-)

Education

10. Review of blood component utilization and sign out of transfusion reactions form the basis for instruction and teaching in Hemotherapy.
11. Sign-out antibody reports with appropriate review of corresponding blood group system form the basis for teaching in Immunohematology.
12. Review of surgery schedule and evaluation information/communications from ARC form the basis for instruction in blood component inventory management and procurement.
13. Review sign-outs of HLA antigen typing/antibody screen/detection, deceased and living donor and recipient transplantation, and B27 reports are the basis for instruction in Transplantation Medicine.
14. Follow and monitor at least one solid organ transplantation through hospitalization.
15. Participate in progenitor cell infusion for at least one patient.
16. Apheresis education is conducted on site on the Apheresis floor.
17. Follow daily interesting/instructive patients relevant and be prepared to update daily.
18. Hands-on benchwork forms basis of instruction for routine blood bank procedures.

Core Curriculum

SUNY Upstate Medical University (10 month rotation)

Bench procedures such as serologic tests for hepatitis, AIDS, cytomegalovirus, and syphilis.

Over the initial two months, the fellow learns routine Blood Bank procedures. This part of the training includes performing procedures and review of case studies as examples of problem-solving techniques. The rotation includes:

7. Learn procedures and become proficient in typing, crossmatching and screening for and identifying irregular antibodies of donor and recipient blood.

8. Learn procedures in immunohematology and become proficient in the detection and identification of irregular antibodies, incorporating antibody panels, absorption/elutions procedures, titers, neutralizations, enzymes and pre-warming techniques.

9. Communicate results of crossmatch problems to clinicians and recommend solutions.

10. Obtain relevant clinical information on patients with complicated irregular antibodies and transfusion reactions

11. Meet with the immunohematology technologist and supervisor to review work-ups and prepare reports on antibody and transfusion reactions consultation.

6. Sign-out immunohematology reports with Blood Bank attending or Director BB/TM.

The fellow will be involved in testing of blood samples in our Immunology Laboratory. He/she will become knowledgeable in EIA testing (HBsAg, anti-HBc, anti-HCV, anti-HIV, and anti-HTLV), latex agglutination (CMV antibody), RPR for syphilis testing. There will be a thorough understanding of test result interpretation, as well as quality control issues.

Donor collection (medical history, collection of blood, recruitment of donors, preparation of components).

During the first three months also, the fellow becomes familiar with the steps used to prepare blood for transfusion including pooling products, aliquoting products, irradiation of blood components, thawing frozen components and leukodepletion. Other aspects are covered during the rotation at Red Cross.

Therapeutic apheresis and therapeutic phlebotomy (see the patient and write a consultation note?)

The fellow works in the first month with the attending physician, coordinator and nursing staff to learn about hemapheresis procedures. The rotation is designed to give the fellow increasing responsibility for this service and be prepared to learn in subsequent months from less frequently encountered diseases in patients. Activities include:

8. The fellow will become familiar with all technical procedures of the hemapheresis section including progenitor (stem) cell collections, therapeutic plasma exchange, white cell and platelet reduction, red cell exchange, plasma volume calculation, and fluid balance.

9. Under the direction of the hemapheresis attending, the fellow will achieve proficiency in evaluating hemapheresis patients, writing orders, responding to clinical problems and providing patient management during and between procedures, especially in patient reactions during procedures.

10. Initially, the fellow will remain with the patient throughout the procedure to familiarize herself/himself with all aspects of medical/nursing care.

11. The fellow will assume progressive responsibility for the management of hemapheresis patients and share coverage with the pathologist attending for off-shift therapeutic procedures.

12. Under the supervision of the Nurse Coordinator of the Apheresis Service, the fellow will become familiar with hemapheresis catheter care, trouble shooting, and instrument problem identification and solving.

13. Following completion of his/her training, the fellow will be competent in managing all aspects of hemapheresis therapy both technical and clinical.

14. The fellow will achieve an understanding of the goals, strategies, and problems related to peripheral blood progenitor collection. She/he will interact with the appropriate clinician regarding problems in this area and CD34 cell target attainment.

Transfusion reactions (see the patient, perform the evaluation, write the consultation note?)

The fellow will be involved in transfusion reactions reported to the Blood Bank. His/her responsibilities include:

1. Evaluate acute transfusion reactions. See patients immediately with suspected hemolytic transfusion reactions. Review Blood Bank work-up and request additional studies if indicated.
2. Oversee the Blood Bank resident in performance of the above when resident is on service.
3. Complete transfusion reaction report forms for attending counter-signature within 24 hours.
4. Enter note in patient's chart of preliminary report and any recommended action or follow-up.
5. Make recommendations for use of special components (i.e., filtered, washed cells or premedication).
6. Complete a delayed hemolytic transfusion reaction form on patients who develop an alloantibody or positive direct antiglobulin test within three months of a transfusion.
7. Follow-up suspected cases of post-transfusion hepatitis. Gather necessary clinical and transfusion information and prepare report for Red Cross. Follow-up with Red Cross and attending physician.

8. Gather data for look-back requests and related New York State and FDA as appropriate.

American Red Cross Blood Services, New York/Penn Region Red Cross (Four weeks in Rochester at regional site and at Syracuse Donor and Dispensing Center)

Bench procedures such as serologic tests for hepatitis, AIDS, cytomegalovirus, and syphilis.

Testing for infectious disease markers, with the exception of stat testing for CMV antibody, is done off-site in either Dedham, MA or Detroit, MI. However, the trainee will be exposed to the processes of receipt of test results, updating of applicable computer files for release of blood for labeling and for tracking deferred donors in the donor deferral register and counseling of donors with positive test results.

Donor collection (medical history, collection of blood, recruitment of donors, preparation of components.)

With implementation of autologous blood donations at University Hospital in 2002, Fellow will be active in all stages of such donor blood processing on site. This will be supplemented and complemented through further involvement in all stages of blood collection at the regional Red Cross Center near Rochester and at the Syracuse extension.

This will include the organizing of mobile blood drives, being available for consultation with nursing staff regarding medical history questions, and managing donor reactions. The fellow will interface with the Donor Recruitment Department, and help in recruiting new blood drive sponsors. There are responsibilities in blood component preparation, including the making of packed red cells, platelet concentrates, fresh frozen plasma, cryoprecipitate, cryopoor plasma, leukocyte reduced blood components and donor hemapheresis products with emphasis on platelets. The fellow will

become familiar with the methods of washing and freezing red cells. He/she will learn the appropriate indications for the use of the products. Donor hemapheresis emphasizing platelets but also granulocytes will be stressed in all aspects of patient care, collection and processing.

Therapeutic apheresis and therapeutic phlebotomy (see the patient and write a consultation note?)

The fellow will learn the indications and contraindications of therapeutic hemapheresis, will consult with attending physicians, will see and evaluate new hemapheresis patients, and write consultation and progress notes in the patient chart. He/she will gain experience in handling adverse reactions. The fellow will evaluate new therapeutic phlebotomies and, at times, participate in the procedure.

Crouse Hospital (four weeks)

In this special BB/TM environment, the resident/Fellow will learn the following:

8. Pathophysiology of anemia in the unborn and newborn.
9. Laboratory investigation and clinical management of newborn with
    a. Hemolytic Disease of the Newborn and most likely etiology in terms of antibody specificity (ABO vs irregular)
    b. Platelet alloimmunization
    c. Prematurity and iatrogenic anemia with special attention to preservation and transfusion aliquoting.
10. Application, utilization, and preparation for intrauterine transfusion in unborn perinatally and exchange transfusion in newborn.
11. Antibody development/management in pregnant women.
12. Transfusion reactions, nature and prevalence, in newborns and pregnant women.
13. Graft vs. host disease in premature infants and newborns and relation to blood product transfusions.
14. Special blood products and their preparation for premature and newborn infants including CMV negative, HLA matched, leukodepleted, washed erythrocytes and leukocytes and irradiation.

Name of Conference	Frequency	Department Responsible
Blood Bank Conference	2 per month - Tues 0800	Pathology/ TM
Hematopathology Conference	2 per month - Tues 0800	Pathology/Hematology
Hematology-Oncology Conf.	Weekly - Thurs 1100	Medicine
Pathology Research Conf.	2 per month	Pathology
Service Review	Weekly - 1100	Pathology
Management Seminar	10 sessions	Pathology
AABB/ASCP Teleconferences	6 per year - Wed 1300	Transfusion Medicine

Renal Transplant/Dialysis	Weekly – Fri 0800	Surgery/Medicine
Bone Marrow/Progenitor (Stem) Cell Conf.	Weekly - Weds 1500	Medicine/ Hematology-Oncology

The fellow is expected to attend/participate in all of these conferences on a regular basis during appropriate rotations. With the Director or Associate Director of BB/TM, he/she plays a leadership role for the BB conference by teaching, leading the discussion and providing assistance to the pathology residents and staff. This is also true for the AABB teleconference series.

There are many other conferences sponsored by the department as well as other departments of University Hospital available to the fellow depending, on their interest. Medical Grand Rounds is strongly recommended.

Method of Evaluation

Six Competencies:

Medical Knowledge
Evaluated in two ways: Chart Stimulated Recall Oral Examination and Portfolios (case logs).

Chart Stimulated Recall Oral Examination: Patient cases of the examinee (resident) are assessed in a standardized oral examination. The attending physician questions the resident about the case provided, probing for reasons behind the work-up, diagnoses, interpretation of clinical findings, and treatment plans.

Portfolio: A portfolio will include a log of clinical procedures performed; a summary of the research literature reviewed when selecting a treatment option and statements about what has been learned, its application, remaining learning needs, and how they can be met.

Practice-Based Learning & Improvement
Evaluated in four ways: Portfolios, Global Rating, Surveys and 360 degree evaluations.

Portfolio: Please see explanation under Medical Knowledge.

Global Rating: A rater judges general categories of ability (patient care skills, medical knowledge, interpersonal and communication skills) and the ratings are completed retrospectively based on general impressions collected over a period of time (end of rotation) derived from multiple sources of information (direct observations or interactions); input from other faculty, lab technicians and residents and review of work products or written materials.

Surveys: Surveys will be distributed to those individuals the resident lectures to (students, nurses, etc). They will address the quality of the lecture, preparation of the lecture, etc.

360 degree evaluation: An evaluation for the resident on service is completed by superiors, peers, subordinates, technical staff, etc. The ratings are summarized for all evaluators by topic and overall to provide feedback.

Interpersonal & Communication Skills

Evaluated in two ways: Checklist and 360 degree evaluation.

Checklist: consists of essential specific behaviors, activities and/or steps that make up a competency component. A check mark indicates that the behavior occurred or options to indicate the completeness or correctness of the action. The forms provide information about behaviors but for the purpose of making a judgment about the adequacy of the overall performance.

360 degree evaluation: Please see explanation under Practice-based Learning & Improvement.

Professionalism

Evaluated in one way: 360 degree evaluation.

360 degree evaluation: Please see explanation under Practice-based Learning & Improvement.

Systems-Based Practice

Evaluated in two ways: Chart Stimulated Recall Oral Examination and 360 degree evaluation.

Chart Stimulated Recall Oral Examination: Please see explanation under Medical Knowledge.

360 degree evaluation: Please see explanation under Practice-based Learning & Improvement.

Patient Care

Evaluated in two ways: 360 degree evaluation and Portfolios.

360 degree evaluation: Please see explanation under Practice-based Learning & Improvement.

Portfolios: Please see explanation under Medical Knowledge.

LEARNING RESOURCES

Reference libraries are available in the resident areas and sign-out areas, containing many of the current major resources, and that there is a mechanism is in place to keep the references current through the residency program office.

1. **AP Sign-out library:** Books may only be reviewed in the sign-out room.

2. **Teaching Sets:** Teaching sets are available in both AP and CP. The study sets in AP can be found in the program coordinator's office (2306 WSK)

3. **California Tumor Registry & Seminars**

4. **Check Samples**

RESEARCH AND TEACHING OPPORTUNITIES

The residents are exposed to an environment, which values a scholarly approach to the problems of pathology and disease and are encouraged to participate in this through opportunities for teaching and clinical or basic research. Research projects may develop as a result of pursuing in-depth studies on subjects in which the resident has a special interest, or may emerge during

rotations in the various services. Each resident is strongly encouraged to pursue pathology practice and training intellectually, with curiosity and imagination, and, as appropriate, to submit manuscripts for publication during his/her residency training. This is considered a valuable learning experience and an important part of the residency program, regardless of the eventual practice setting for the individual resident. The work may be related to methods development, clinical or basic research, or reviews.

Residents are required to participate in some of the teaching activities of the Department of Pathology. This includes teaching of medical students on elective rotations in Pathology and of fellow residents through presentations at Journal Club and various intradepartmental and intradepartmental conferences.

Teaching Responsibilities

Residents are required to participate in the teaching programs of the department. Residents will assist in teaching the Cytotechnology students.

Presentations at Professional Meetings

Residents are encouraged to present papers or poster sessions at local or national meetings or proceedings of various research or professional societies. Residents will find the annual and semi-annual meetings of the US - Canadian Academy of Pathology, The American Society of Clinical Pathologists, the College of American Pathologists, and other Pathology and Laboratory medical organizations appropriate for most oral and poster presentations (see also Business Leave) to refer to the details about meetings.

PATHOLOGY TELEPHONE DIRECTORY

University Hospital Administrative Staff	Telephone Extension	Room No. & Bldg.
Gregory A. Threatte, MD, Chair of Pathology	45739	3800 UH
Anna-Luise Katzenstein, MD, Vice Chair & Director of Anatomic Pathology	47153	6709 UH
Robert Hutchison, MD, Director of Clinical Pathology	46771	2258 WH
Karla Lauenstein, Department Manager	46709	3708 UH
Kathy Sayles, Asst. Manager, Anatomic Pathology	47147	6808 UH
Elizabeth Rosaschi, Co-Administrator for Accounting & Billing	46751	224 Harrison #600
Tony Kurec, Co-Administrator for University Pathologists Laboratories & Marketing	47139	224 Harrison #600
Carol Barnett, Marketing	43281	224 Harrison #600
Candy Flock, Asst. to Department Administrators	49385	224 Harrison #600
Susan Jakubowski, Assistant to the Chair	46816	3330 UH
Pathology Residency Program		
Katalin Banki, MD, Director of Pathology Residency Program	46790	3809 UH
Sue Phillips, Pathology Residency Coordinator	44670	2306 WH
University Hospital Pathology Faculty		
Abraham, Jerrold L.	47143	2152 WH
Banki, Katalin	46790	1313 WH
Barker-Griffith, Ann	47156	3809 WH
Bem, Sylva	46715	
de la Roza, Gustavo	47126	3804B UH
El-Zammar, Ola	47176	6805B UH
Friedman, Eileen	47148	2301 WHA
Gonchoroff, Nick J.	46753	4750 UH
Gordon, Gerald B.	47151	6804 UH
Hutchison, Robert E.	46771	2258 WH
Katzenstein, Anna-Luise	47153/47125	6709 UH

Khurana, Kamal	47135	2140 WH
Kiska, Deanna L.	46713	3810 UH
Landas, Steve K.	47169	6703C UH
Mukhopadhyay, Sanjay	47173	6804D UH
Riddell, Scott	46708	3810 UH
Rosales, Lazaro	46768	3809 UH
Shanley, Paul F.	47171	2292 WA
Shrimpton, Antony	46807	4850 UH
Stein, Constance K.	46788	3733 UH
Stoppacher, Robert	435-3163	Medical Examiner's Office
Tatum, Arthur H.	46781	8305 WHA
Threatte, Gregory A.	45739	3800 UH
Vajpayee, Neerja	46719	2260 WH
Valente, Alfredo	44668	6805C UH
Woo, Jannie	46717	1101 WH
Zhang, Shengle	47131	6804C UH

Affiliated Hospital Faculty

Onondaga County Medical Examiner's Office (435-3163; Fax 435-3319)
Center for Forensic Sciences - 100 Elizabeth Blackwell Street

Robert Stoppacher, MD - Chief Medical Examiner
Abraham Philip, MD – Assistant Medical Examiner

Veterans Administration Hospital (425-4400)
800 Irving Avenue, Syracuse, NY 13210

Margaret Kowalski, MD - Chief of Pathology and Lab Medicine 425-4802
Henry Friedman, MD
Yiran Dai, MD
Seena Kumar, MD

ANATOMIC PATHOLOGY LABORATORIES

Administrative Staff	Telephone Extension	Room No. & Bldg.
Anna-Luise Katzenstein, MD - Director	47125/47153	6709 UH
Christine McGivney - Assistant to Director	47125	6709 UH
Kathy Sayles- Assistant Manager, AP	47147	6808 UH
Autopsy Service/Office		
Robert Stoppacher, MD - Medical Director	435-3163	MEO
MEO Office	435-3163	Ctr for Forensic Science
Donald Jaeger – Director, Autopsy Services	45123	7310 WHA
Cytopathology Laboratory		
Kamal K. Khurana, MD - Medical Director	47135	2140 WH
Gustavo de la Roza, MD	47126	6804B UH
Ola El-Zammar, MD	47176	6805B UH
Sanjay Mukhopadhyay, MD	47173	6804D UH
Lucinda Steele - Supervisor	47159	2317 WHA
Hollie Galusha – Secretary	44270	2141 WH
Roberta Demoski, Emily Meaker, Lynne Iamondo, Kara Morgan, Terri Standford, Cheryl Schmitt		
Electron Microscopy Laboratory		
Paul F. Shanley, MD - Director	47171	2292 WHA
Maureen Barcza - Supervisor	46844	2157 WH
Joyce Qi	46844	2157 WH
Environmental & Occupational Pathology Laboratory		
Jerrold L. Abraham, MD - Director	47143	2152 WH

Eye Pathology Laboratory		
Ann Barker-Griffith, MD - Director	47156	2137 WH
Carolyn Buckbee - Secretary	47156	2137 WH
Gross Room/Specimen Receiving		
India Bolden – Gross Room Clerk	47121	6706 UH
Histology/Immuno Laboratory		
Anna-Luise Katzenstein, MD - Director	47125/47153	6709 UH
Julie Lippa - Supervisor	45469	2319 WH
Delores LaFontaine- Asst. Supervisor		
Donna Barrett, Helene Degan, Rich Hewlig, Jody Sherman-Tamber, Kathy Sullivan, Jamie Tull, Elise Vecchio		
Immunopathology		
Arthur Tatum, MD, PhD	46781	8305 WHA
Pathology Education Office		
Steve K. Landas, MD - Director	47167	6703C UH
Nick Gonchoroff, DrPH - Educational Coordinator	46753	4850 UH
Christine Schwindt - Secretary	47165	2306 WHA
Renal Laboratory		
Paul F. Shanley, MD - Director	47171	2292 WHA
Karen Kelly - Secretary	47117	2292 WHA

Anatomic Pathology Clerical Staff	Telephone Extension	Room No. & Bldg.
Buckbee, Carolyn	47156	2137 WH
McGivney, Christine	47125	6709 UH
Phillips, Sue	44670	2360 WHA
Schwindt, Christine	47165	2262 WH
Spak, Kathy	45170	6803 UH
Wilhelm, Kim	44750	6803 UH
Willis, Dorothy	44750	6803 UH

Anatomic Pathology Miscellaneous		
Pathology Main Office	44750	6803 UH
SP Consultation Room (Reading Room)	47140/47141	6705 UH
AP Resident's Room	47142	6712 UH
Scanning EM Room	47145	2165 WH
Rolla B. Hill Conference Room (6717)	47137	6717 UH

CLINICAL PATHOLOGY LABORATORY AND STAFF

Administrative Staff		
Robert Hutchison, MD - Director	46771	1317 WHA
Karla Lauenstein, Department Manager	46709	3708 UH
Brenda Clarke, Asst. to Department Manager	45738	3718 UH
Michelle Gugliotta, CP Clerical Supervisor	46714	3809 UH
Linda Underwood, Assistant to the Director	46755	3800 UH
Front Desk	44460	3700 UH
Laboratories		
Andrology	45688	5720 UH
Blood Drawing	46813	1517 UH
Core Laboratory		3802 UH
Automation (Chem/Heme)	46836	3802 UH
Processing/Urinalysis/Blood Gases	46822	3702 UH
Electrophoresis	46838	3729 UH
RIA	46838	3728 UH
Toxicology	46830	3804 UH
Bone Marrow Lab	46842	3805 UH
Special Hematology	46826	3806 UH
Cytochemistry	46842	3805 UH
Computer Room	45775	4732 UH
Conference Room	46837	3816 UH
Cytogenetics	44716	3815 UH
Hematology/Oncology Clinic Lab	48208	ROC
Immunology/Flow Cytometry	44463	4717 UH

Microbiology/Virology	44459	3719 UH
Parasitology	46802	3817 UH
Virology	46740	4704 UH
Acid Fast/Mycology	46803	3817 UH
Molecular Pathology	46806	3814 UH
Residents Room (CP)	46819	3811 UH
	46796	3722 UH
Blood Bank/Transfusion Medicine	46701	3713 UH
Immunohematology	46697	3709 UH
Histocompatibility/Parentage Testing	44775	4724 UH
Hemapheresis/Stem Cell	49022	8100 UH
UPL (University Pathologists Lab)	44820	550 Harrison

BEEPER NUMBERS

Pathology Faculty		Residents/Fellows	
Jerrold Abraham	441-6452	Todd Anderson	467-6564
Katalin Banki	467-7148	Vivian Arguello	467-0538
Ann Barker-Griffith	467-0740	Chris Curtiss	467-1562
Sylva Bem	467-4960	Fangming Deng	467-0501
Gustavo de la Rosa	467-3768	Erika Doxtader	467-9937
Ola El-Zammar	467-0504	Jeremy Klapper	467-0592
Gerald Gordon	441-1799	Zia Khan	467-0351
Robert Hutchison	441-2163	Kristen Mead	467-0212
Anna-Luise Katzenstein	467-2192	Sonia Narendra	467-2045
Kamal Khurana	441-5359	Brian Pavlovitz	467-0509
Deanna Kiska	441-5354	Rong Rong	467-0239
Steve Landas	441-6183	Elizabeth Ruckdeschel	467-0526
Sanjay Mukhopadhyay	467-0297	Soma Sanyal	467-1917
Scott Riddell	441-5354	Charu Thakral	441-5358
Lazaro Rosales	441-4909	Yanhong Zhang	467-6562
Paul Shanley	441-4012		
Zhanna Spector	441-0355		
Arthur Tatum	441-2210		
Gregory Threatte	467-6049		
Neerja Vajpayee	441-3970		
Alfredo Valente	467-4192		
Shengle Zhang	467-4995		

Departmental Fax Numbers

Anatomic Pathology Admin.	47130
Anatomic Pathology – Rm 6804	47175
Anatomic Pathology – WSK	47137
Clinical Pathology Admin.	46817
Clinical Pathology Front Desk	46733
Pathology Administrative Office	46749
CCC (Frozen Section Room)	42844
Residency Program	44675

FACULTY SERVICE AND RESEARCH INTERESTS

Faculty Members	**Research Interests**
Jerrold L. Abraham, MD Professor of Pathology Director, Environmental/Occupational Pathology Pulmonary Pathology	Environmental and occupational pulmonary diseases; scanning electron microscopy and x-ray microanalysis studies. Nephrogenic system fibrosis; gadolinium (Gd) toxicity.
Katalin Banki, MD Associate Professor of Pathology Director, Hematopathology Fellowship Program	Molecular biology of autoimmune diseases. The role of transaldolase and the pentose Phosphate shunt in apoptosis.

Director, Residency Program

Ann Barker-Griffith, MD Associate Professor of Pathology Pathology	Complications of ocular trauma; ocular region tumors; elastic tissues in ocular surface Ophthalmic disease. Innovations in Medical Education.
Sylva Bem, MD Clinical Assistant Professor	Histopathology and Immunopathology of malignant lymphomas.
Gustavo de la Roza, MD Associate Professor of Pathology Director, Surgical Pathology Surgical & Cytopathology	Oncological surgical pathology with special interest in breast, urological, and musculoskeletal pathology.
Ola El-Zammar, MD Assistant Professor of Pathology	Classification of Congenital cystic adenomatoid malformation of the lung. EGFR mutation and amplification in Adenocarcinoma of lung using gene sequencing, FISH and immunohistochemistry.
Eileen A. Friedman, PhD Jones/Rohner Endowed Research Professor	The role of Mirk kinase in cancer progression
Henry Dan Friedman, MD Associate Professor of Pathology Pathologist, Pathology & Laboratory Medicine, Medical Director, Blood Bank and Cytopathology (Syr.)	Documentation of unusual cases in hematopathology surgical pathology and Lead cardiac pathology. Develop artificial VAMC at Syracuse, Bath, Canandaigua & Rochester; intelligence approach to improving rational laboratory test utilization. Comparative studies on biochemical urinary parameters for detection and monitoring of nephropathy in the adult population.
Nick J. Gonchoroff, DrPH Associate Professor of Pathology Dir, Flow Cytometry Unit Asst. Director, Clinical Immunology Educational Coordinator for Pathology 200	Cell kinetics of tumors; molecular and immunological identification of tumor cells; rare event detection using the flow cytometer; tumor infiltrating lymphocytes; flow cytometry.
Gerald B. Gordon, MD Professor of Pathology	Ultrastructural pathology of cell injury.
Lawrence P. Gordon, MD Associate Professor of Pathology Associate Director of Cytogenetics Attending Pathologist, Crouse Hospital	Placenta, congenital malformations, cytogenetics.
Robert E. Hutchison, MD Professor Director, Hematopathology/Clinical Pathology	Pathology of leukemia and lymphoma Oncogene Inhibition
Anna-Luise Katzenstein, MD Professor of Pathology Vice Chair of Pathology Director, Anatomic Pathology Surgical Pathology	Pulmonary Pathology; Interstitial lung disease and Vasculitis

Kamal K. Khurana, MD Professor of Pathology & Adjunct Prof Internal Med Director, Cytopathology and Cytopathology Fellowship Program Medical Director, Cytotechnology Program / Cytopathology and Surgical Pathology	Interventional Cytopathology, pathologic correlation. Head Neck Cytology
Deanna L. Kiska, PhD Assistant Professor of Pathology	Molecular detection and identification of microorganisms; detection of antimicrobial resistance mechanisms.
Steve K. Landas, MD Professor of Pathology Surgical Pathology, Autopsy	Cardiovascular Pathology; Gastrointestinal Pathology Urologic Pathology
Sanjay Mukhopadhyay, MD Assistant Professor of Pathology	Pulmonary pathology: aspiration pneumonia in surgical lung biopsies, granulomatous lung disease, congenital cystic adenomatoid malformations, end-stage sarcoidosis, airway-centered interstitial fibrosis. Surgical pathology: celiac disease, cystic nephroma, HBME-1 in papillary thyroid carcinoma, utility of the HUMARA technique in assessment of clonality.
Scott Riddell, PhD Clinical Assistant Professor of Pathology Director, Microbiology and Virology Rapid diagnostics	Molecular diagnostics for infectious diseases; Antimicrobial susceptibility testing; Infection control and molecular epidemiology
Lazaro G. Rosales, MD Assoc. Professor of Pathology American Red Cross Blood Services	Transfusion Medicine, hemapheresis, Progenitor cell and Solid Organ Transplantation
Paul F. Shanley, MD Professor of Pathology and Director, Nephropathology	Mechanisms of renal injury.
Antony E. Shrimpton, PhD Associate Professor of Pathology Director, Molecular Pathology Assistant Director, Cytogenetics	Mapping human disease genes and disease gene mutation analysis. In particular identifying the genes involved in limb development abnormalities, including Congenital Vertical Talus (CVT) and pes cavas disease, X-linked Mental Retardation such as FG Syndrome and Renpenning Syndrome, familial dementias such as Familial Encephalopathy with Neuroserpin inclusion bodies (FENIB), kidney disease e.g. Dent's disease, Familial neoplasias such as Familial Osteosarcoma, and identifying genetic variation responsible for modification of Cystic Fibrosis phenotype.

Constance K. Stein, PhD Professor of Pathology and Pediatrics Director of Cytogenetics & Associate Director of Molecular Diagnostics Course Co-Director, Molecular Foundations of Medicine	Investigation of chromosomal fragile Associate sites, cytogenetic and molecular characterization of malignant tumors, chromosome imprinting, investigation of chromosomal anomalies, clinical applications of FISH.
Arthur H. Tatum, MD, PhD Associate Professor of Pathology Pathology	Monoclonal antibody-mediated demyelination; molecular and cell biology Renal of neural cell adhesion molecules.
Gregory A. Threatte, MD Professor of Pathology & Chair Director, Clinical Chemistry	Laboratory automation. Informatics.
Neerja Vajpayee, MD Clinical Assistant Professor	Tumors of haematopoietic and lymphoid tissues, immunohistochemical analysis of neoplastic lung tissue.
Alfredo Valente, MD Assistant Professor of Pathology Surgical Pathology	Molecular biology of soft tissue and bone tumors; oncological surgical pathology
Jannie Woo, PhD Professor of Pathology Associate Director, Clinical Chemistry	Web-based learning/teaching modules for medical education. Database development & information retrieval
Shengle Zhang, MD Assistant Professor of Pathology Surgical Pathology	Molecular Oncology and its clinical application

APPENDIX

INSTITUTIONAL GUIDELINES AND POLICIES

The following policies are included in this edition of the Pathology Residency Manual. These have been extracted from the general policy manual provided to all residents and fellows at SUNY Upstate. The policies put into this manual do not supersede those in the general manual. They are provided herein for your convenience.

SUNY Upstate Medical University
Syracuse, New York

Guidelines and Policies, Office of Graduate Medical Education
Section: Standard Operating Procedures for the Evaluation and Termination of Residents

I. PURPOSE

It is the responsibility of each of the Departments at SUNY Upstate to develop admission criteria, evaluation procedures and standards of performance that reflect the unique objectives and practice/training environment of that program. This diversity of emphasis is a strength of the institution. This procedure is intended to guide program directors, faculty and administrators in the application of procedures, consistent with law and ACGME requirements governing key decisions regarding residents in graduate medical education programs. The SUNY Upstate Medical University Office of Graduate Medical Education will serve to monitor, oversee and facilitate individual departments' compliance with institutional ACGME, and RRC specific guidelines for due process. The term "resident" as used in this document encompasses all individuals in all postgraduate medical education positions.

II. Evaluation Process

A. Professional Standards and Evaluation

All residents are expected to conform to Standards of Professional Conduct, and Professional Ethics. All residents shall comply with the campus policy on anti-discrimination and civility. Alleged violations of these policies and/or misconduct as defined in Section 6530 of the New York State Education Law may be grounds for probation or suspension pending a final determination. A finding of violation of these policies and/or misconduct may be grounds for disciplinary action including probation, suspension, or termination and reporting to the New York State Office of Professional Medical Conduct as required by law. All determinations regarding unprofessional behavior shall be fully supported by the Department. Upon a recommendation by the Department to the Associate Dean of Graduate Medical Education, probation, suspension or termination may be imposed. The resident shall be notified in writing of the determination, and the right to appeal. If a report has not already been made, absent an appeal, or following the sustaining of adverse action following an appeal, a report shall be made to the New York State Office of Professional Medical Conduct. A pending charge of unprofessional behavior does not preclude Upstate Medical University from non-renewing the resident at the end of the appointment under any circumstances.

B. Academic Standards and Evaluation: Routine Procedures for All Residents

The primary responsibility for defining the standards of academic performance and personal professional development rests with the individual Departments and program directors based on ACGME standards. When, a resident's performance is not adequate, notification of the deficiencies

must be made, in writing to the resident by the program director with copies to the Dean for Graduate Medical Education. A plan to correct deficiencies, which include the manner and time frame in which the deficiencies will be corrected, and the consequences of not correcting the deficiencies within the time frame, should be a part of this notice. There may be a specific probation period, before a decision is made to recommend termination of a resident for academic performance, except that a resident on academic probation may be non-renewed at the end of the appointment under any circumstances.

1. Criteria

A. Depending upon the program, performance criteria may include cognitive objectives, skills (credentialing requirements), and patterns of behavior indicative of professional attitudes. They should be clearly defined and given to the resident in written form.

B. Criteria must be reasonable and related to patient care and the practice of medicine. They should include evidence of satisfactory progressive scholarship and professional growth including demonstrated ability to assume graded and increasing responsibility for patient care.

2. Assessment and Notification

A. At least semiannually, the program director and faculty of each program should use appropriate procedures and criteria to evaluate the knowledge, skills and professional growth of its residents. The results of the evaluation should be in writing and communicated to each resident in a timely manner and the record of the evaluation should be accessible to the resident. The program director must provide a final evaluation for each resident who completes the program. The evaluation must include a review of the resident's performance during the final period of education and should verify that the resident has demonstrated sufficient professional ability to practice competently and independently. The final evaluation must be part of the resident's permanent record maintained by the institution. A copy of this evaluation form will be distributed to the Office of Graduate Medical Education.

B. Supporting documentation such, as non-supervisory senior resident and attending physicians evaluation forms, as well as other appropriately solicited written comments, must be collected and maintained. These documents may be released to the resident only with the written permission of the non-supervisory evaluator.

C. Residents should be advanced to positions of higher responsibility only on the basis of an evaluation of their knowledge, ability and readiness to cope with increased responsibility and professional comportment.

III. Remediation

A. Recommendations for remedial action and consequences of continued deficiency should be clearly defined for the resident in writing in each individual case. A copy of the notification to the resident should be submitted to the Graduate Medical Education Office.

B. A reasonable timetable for corrective action by the resident should be established. Absent extraordinary circumstances, this should be a period of at least three months.

C. If remedial action does not result in satisfactory performance, notifications of continued deficiency on the part of the resident and the consequences, (i.e., probation, suspension, or

proposed termination) should be provided **in writing** to the resident and to the Office of Graduate Medical Education.

D. All informal and formal meetings with the resident related to deficiencies should be documented with dated notes or memoranda to file.

IV. Non-renewal & Termination

A. A resident may be non-renewed at the end of the **term of their appointment** for **any non-discriminatory** reason. Such decision is not subject to appeal nor grievance procedures.

B. If based on inadequate academic performance, termination prior to the academic year is being considered, the Program Director will notify the Associate Dean of Graduate Medical Education to discuss the findings and recommendations of the Program Director and faculty of said department. (The Associate Dean may consult with legal counsel and the Human Resources Department to discuss these findings).

C. If based on conduct which violates the Standards of Professional Conduct and/or Professional Ethics, and/or which is deemed to be a danger to patients and termination prior to the end of the academic year is being considered, the Program Director will notify the Associate Dean of Graduate Medical Education to discuss the findings and recommendations of the Program Director and faculty of said department. (The Associate Dean may consult with legal counsel and the Human Resources Department to discuss these findings).

D. After consultation with GME, the Program Director then notifies the resident of his or her **recommendation** regarding termination. The notice will advise the resident that they may appeal the termination decision by requesting a review within 10 business days of the notice from the Office of the Dean of GME.

E. If termination prior to the end of the academic year is considered based on the belief that a resident is impaired and/or his/her performance is a threat to patients and or staff, the resident **may** be suspended from all patient care responsibilities pending a **final** determination **regarding appropriate action**.

V. Appeal Process

A. There is no appeal for non-renewal of temporary appointment.

B. If a resident would like to appeal a termination decision prior to the end of the academic year of his/her Program Director, the resident should make a written request for such to the Associate Dean for Graduate Medical Education. Such request must be made in writing within 10 working days of termination.

1. The Office of Graduate Medical Education will select a three-member panel consisting of members of the Graduate Medical Education Committee. The members of this panel will consist of one resident and two program directors, not from the petitioning resident's department. The date set will not be adjourned absent extraordinary circumstances.

2. A hearing will be scheduled within 30 days of termination. The Program Director of said department, or his or her designee, will present the case for termination. The resident is afforded the opportunity to bring witnesses to this hearing and any documentation s/he deems appropriate. The resident may have an advisor who may be present, but may advise the resident only and not participate in the hearing. Witnesses may make statement by telephone, and their

non-availability shall not per se, be grounds for adjournment. Failure of the resident to appear shall result in forfeiture of the right to question the Department witnesses.

3. The three member panel will render a decision based upon the information provided. This decision will be transmitted via written correspondence to the petitioning resident, the Program Director of said department, and the Dean of GME within 10 working days of the hearing procedure.

4. If either party would like to appeal this decision, a formal letter within 10 working days should be sent to the Associate Dean for Graduate Medical Education. Failure to notify the Associate Dean within this time frame will terminate the appeal process at this point. The Dean of the College of Medicine will then make a final decision. The Dean of the College of Medicine will transmit his decision to the Associate Dean for Graduate Medical Education. The Associate Dean will transmit in writing to the petitioning resident and the Program Director of the relevant department this final decision.

5. Copies of the notification letter are sent to the Program Chairperson, the Dean of Graduate Medical Education, the Director of the Office of Human Resources and Employee Relations and the University Hospital Medical Staff Office.

6. Upon receipt of a copy of a termination letter, the Program Chairperson will notify the program faculty as well as appropriate staff coordinators at affiliated hospitals that the resident in question is no longer authorized to be present or provide patient care in their facilities.

7. Upon receipt of a copy of a termination letter, the Dean of Graduate Medical Education will inform the Payroll Office of the date of suspension of pay. The Payroll Office will, in turn, inform the SUNY Central Office of Employee Relations and Human Resources of the change in the resident's status with a Form UP-2, *Notification of Professional Change of Status*. A Form PR-75, *Payroll Action Form*, with appropriate information regarding the resident is sent to Audit and Control in Albany.

VI. Reporting Requirements

A. The New York State Public Health Law requires that "Hospitals and other facilities approved pursuant to this article (PHL 2803-e) shall report or cause a report ot be made within thirty days of the occurrence of any of the following: suspension, restriction, termination or curtailment of the training employment, association or professional privileges or the denial of the certification of completion of training of an individual licensed pursuant to the provisions of title eight of the education law or of a medical resident with such facility for reasons related in any way ot alleged mental or physical impairment, incompetence, malpractice or misconduct or impairment of patient safety or welfare; the voluntary or involuntary resignation or withdrawal of association or of privileges with such facility to avoid the imposition of disciplinary measures; or the receipt of information which indicates that any professional licensee or medical resident has been convicted of a crime; the denial of staff privileges ot a physician if the reasons stated for such denial related to alleged mental or physical impairment, incompetence, malpractice, misconduct or impairment of patient safety or welfare."

B. Depending upon the specialty involved, the Residency Review Committee may require notification of the departure of a resident from the program. Program directors are advised to check with their RRC in this regard.

VII. Responding to Verifications for Residency

A. For those residents who have been terminated prior to the completion of their residency, requests for information regarding their tenure at SUNY Upstate Medical University should be addressed or redirected to the Office of Graduate Medical Education for completion.

B. All other requests for verification will be completed by the appropriate department or the Office of Graduate Medical Education.

ACGME PROGRAM REQUIREMENTS FOR GRADUATE MEDICAL EDUCATION IN PATHOLOGY

Graduate medical education programs in pathology are accredited in the following categories:

APCP-4	Four-year programs in anatomic and clinical pathology
AP-3	Three-year programs in anatomic pathology
CP-3	Three-year programs in clinical pathology
PCP-1	One-year programs in cytopathology
BB-1	One-year programs in blood banking/transfusion medicine
DP-1	One-year programs in dermatopathology
FP-1	One-year programs in forensic pathology
HMP-1	One-year programs in hematology
MM-1	One-year programs in medical microbiology
NP-2	Two-year programs in neuropathology
PP-1	One-year programs in pediatric pathology
IMP-1	One-year programs in immunopathology
PCH-1	One-year programs in chemical pathology
SP	One-year programs in selective pathology. Selective pathology programs are typically sponsored by institutions that provide unique educational resources in a specialized area of pathology.

I. Introduction

A. See above listing of programs.

B. Duration and Scope of Training

1. Graduate medical education programs in anatomic pathology and/or clinical pathology must provide an organized educational experience for qualified physicians seeking to acquire the basic competence of a pathologist.
2. Programs must offer residents the opportunity to acquire a broad understanding of anatomic pathology and/or clinical pathology, the techniques and methods of those disciplines, and the consultative role of the pathologist in patient-care decision making.
3. APCP-4 programs are accredited to offer 4 years of education/training in anatomic pathology and clinical pathology, 3 years of training in anatomic pathology (AP-3), and 3 years of training in clinical pathology (CP-3).
4. APCP-4 programs must include 18 months of formal education in anatomic pathology and 18 months of formal education in clinical pathology. The remaining 12 months of training may be a continuation of structured anatomic pathology or clinical pathology education, or may be devoted to a specialized facet of pathology. AP-3 and CP-3 programs must include 24 months of anatomic pathology or clinical pathology education. The remaining 12 months of training may be a continuation of

structured anatomic pathology and/or clinical pathology education, or may be devoted to a specialized facet of pathology. The education must occur under the direction of the program director or designated member of the teaching staff. The program director must clearly define, as part of the program description, the available opportunities whereby residents may accomplish the additional 12 months of pathology education. The program director must approve all such opportunities and monitor their progress.

II. Institutional Support of Graduate Medical Education

A. Sponsoring Institution

One sponsoring institution must assume ultimate responsibility for the program, as described in the Institutional Requirements, and this responsibility extends to resident assignments at all participating institutions. As other residency programs facilitate peer interchange and augment the breadth of the educational experience, institutions providing graduate medical education in anatomic pathology and/or clinical pathology should also sponsor at least three additional accredited residency programs. Programs in internal medicine, family practice, obstetrics and gynecology, general surgery, pediatrics, and radiology are considered to be most complementary to pathology education. Requests for exceptions to this requirement will be considered on a case-by-case basis.

B. Participating Institutions

1. Assignment to an institution must be based on a clear educational rationale, integral to the program curriculum, with clearly-stated activities and objectives. When multiple participating institutions are used, there should be assurance
of the continuity of the educational experience.
2. Assignment to a participating institution requires a letter of agreement with the sponsoring institution. Such a letter of agreement should:
    a) identify the faculty who will assume both educational and supervisory responsibilities for residents;
    b) specify their responsibilities for teaching, supervision, and formal evaluation of residents, as specified later in this document;
    c) specify the duration and content of the educational experience; and
    d) state the policies and procedures that will govern resident education during the assignment.
3. Resident assignments away from the sponsoring institution should not prevent regular resident participation in rounds or conferences, either at the sponsoring institution or in equivalent conferences at participating institutions.

III. Program Personnel and Resources

A. Program Director

1. There must be a single program director responsible for the program. The person designated with this authority is accountable for the operation of the program. In the event of a change of either program director or department chair, the program director should promptly notify the executive director of the Residency Review Committee (RRC) through the Web Accreditation Data System of the Accreditation Council for Graduate Medical Education (ACGME).
2. The Program Director, together with the faculty, is responsible for the general administration of the program, and for the establishment and maintenance of a stable educational environment. Adequate lengths of appointment for both the

program director and faculty are essential to maintaining such an appropriate continuity of leadership.

3. Qualifications of the program director are as follows:
   a) The program director must possess the requisite specialty expertise, as well as documented educational and administrative abilities, including at least 5 years of participation as an active faculty member in an accredited pathology residency.
   b) The program director must be certified in anatomic pathology, clinical pathology, or anatomic pathology and clinical pathology by the American Board of Pathology, or possess qualifications judged to be acceptable by the RRC.
   c) The program director must be appointed in good standing and based at the primary teaching site.
4. Responsibilities of the program director are as follows:
   a) The program director must oversee and organize the activities of the educational program in all institutions that participate in the program. This includes selecting and supervising the faculty and other program personnel at each participating institution, appointing a local site director, and monitoring appropriate resident supervision at all participating institutions.
   b) The program director is responsible for preparing an accurate statistical and narrative description of the program as requested by the RRC, as well as updating annually both program and resident records through the ACGME's Accreditation Data System.
   c) The program director must ensure the implementation of fair policies, grievance procedures, and due process, as established by the sponsoring institution and in compliance with the Institutional Requirements.
   d) The program director must seek the prior approval of the RRC for any changes in the program that may significantly alter the educational experience of the residents. Such changes, for example, include:
      (1) the addition or deletion of a participating institution;
      (2) a change in the format of the educational program;
      (3) a change in the approved resident complement for those specialties that approve resident complement. On review of a proposal for any such major change in a program, the RRC may determine that a site visit is necessary.

B. Faculty

1. At each participating institution, there must be a sufficient number of faculty with documented qualifications to instruct and supervise adequately all residents in the program.
2. The faculty, furthermore, must devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities. They must demonstrate a strong interest in the education of residents, and must support the goals and objectives of the educational program of which they are a member.
3. Qualifications of the physician faculty are as follows:
   a) The physician faculty must possess the requisite specialty expertise and competence in clinical care and teaching abilities, as well as documented educational and administrative abilities and experience in their field.
   b) The physician faculty must be certified in the specialty by the American Board of Pathology, or possess qualifications judged to be acceptable by the RRC.
   c) The physician faculty must be appointed in good standing to the staff of an institution participating in the program.
4. The responsibility for establishing and maintaining an environment of inquiry and scholarship rests with the faculty, and an active research component must be included in each program. *Scholarship* is defined as the following:
   a) the scholarship of *discovery*, as evidenced by peerreviewed funding or by publication of original research in a peer-reviewed journal;

b) the scholarship of *dissemination*, as evidenced by review articles or chapters in textbooks;
c) the scholarship of *application*, as evidenced by the publication or presentation of, for example, case reports or clinical series at local, regional, or national professional and scientific society meetings.

Complementary to the above scholarship is the regular participation of the teaching staff in clinical discussions, rounds, journal clubs, and research conferences in a manner that promotes a spirit of inquiry and scholarship (e.g., the offering of guidance and technical support for residents involved in research such as research design and statistical analysis); and the provision of support for residents' participation, as appropriate, in scholarly activities.

5. Qualifications of the nonphysician faculty are as follows:
   a) Nonphysician faculty must be appropriately qualified in their field.
   b) Nonphysician faculty must possess appropriate institutional appointments.

C. Other Program Personnel

Additional necessary professional, technical, and clerical personnel must be provided to support the program.

1. The laboratories providing patient-care services must be accredited by the appropriate organizations and must be directed by a qualified physician who is licensed to practice medicine and is a member of the medical staff.
2. The number and qualifications of medical technologists and other support personnel must be adequate for the volume of work in the laboratory and the educational activities of the institution.

D. Resources

The program must ensure that adequate resources (e.g., sufficient laboratory space and equipment, classrooms, meeting rooms, computer and statistical consultation services) are available.

1. Office and laboratory space must be provided for the residents for both patient-care work and participation in scholarly activities.
2. The patient material of the department must be indexed in such a way as to permit appropriate retrieval.

3. Residents must have ready access to a major medical library, either at the institution where the residents are located or through arrangement with convenient nearby institutions. The services provided by the library should include the electronic retrieval of information from medical databases.
4. There must be access to an on-site library or to a collection of appropriate texts and journals in each institution participating in a residency program. On-site libraries and/or collections of texts and journals must be readily available during nights and weekends.
5. The audiovisual resources available for educational purposes should be adequate to meet the goals and objectives of the program.

IV. Resident Appointments

A. Eligibility Criteria

The program director must comply with the criteria for resident eligibility as specified in the Institutional Requirements.

B. Number of Residents

The RRC will approve the number of residents based upon established written criteria that include the adequacy of resources for resident education (e.g., the quality and volume of patients and related clinical material available for education), faculty-resident ratio, institutional funding, and the quality of faculty teaching. Programs must maintain a number of residents sufficient to promote an intellectually-stimulating educational environment. There should be at least two residents enrolled in each year of a program. A lesser number is cause for concern by the RRC.

C. Resident Transfers

To determine the appropriate level of education for residents who are transferring from another residency program, the program director must receive written verification of previous educational experiences and a statement regarding the performance evaluation of the transferring resident prior to their acceptance into the program. A program director is required to provide verification of residency education for residents who may leave the program prior to completion of their education.

D. Appointment of Fellows and Other Students

The appointment of fellows and other specialty residents or students must not dilute or detract from the educational opportunities available to regularly appointed residents.

V. Program Curriculum

A. Program Design

1. Format

   The program design and sequencing of educational experiences will be approved by the RRC as part of the review process.

2. Goals and Objectives

   The program must possess a written statement that outlines its educational goals with respect to the knowledge, skills, and other attributes of residents for each major assignment and for each level of the program. This statement must be distributed to residents and faculty, and must be reviewed with residents prior to their assignments.

B. Specialty Curriculum

The program must possess a well-organized and effective curriculum, both didactic and clinical. The curriculum must also provide residents with direct experience in progressive responsibility for patient management.

1. Didactic Components

   a) Education in anatomic pathology must include autopsy and surgical pathology, cytopathology, pediatric pathology, dermatopathology, forensic pathology, immunopathology, histochemistry, neuropathology, ultrastructural pathology, cytogenetics, molecular biology, aspiration techniques, and other advanced diagnostic techniques as they become available.

   b) Education in clinical pathology must include microbiology (including bacteriology, mycology, parasitology, and virology), immunopathology, blood banking/transfusion medicine, chemical pathology, cytogenetics, hematology, coagulation, toxicology, medical microscopy (including urinalysis), molecular biologic techniques, aspiration techniques, and other advanced diagnostic techniques as they become available.

c) Programs must provide residents with instruction and experience in the interpretation of laboratory data as part of patient-care decision-making and patient-care consultation. Residents must also participate in pathology conferences, rounds, teaching, and scholarly activity, and gain experience in the management and direction of a pathology laboratory (including quality assurance, safety, regulations, and the use of hospital and laboratory information systems).

d) The educational experiences detailed above may be provided through separate, exclusive rotations, by rotations that combine more than one area, or by other means; in any case, all rotations and other assignments must conform to the educational goals and objectives of the program.

e) Seminars, Conferences, and Rounds

(1) There must be regularly-scheduled seminars and conferences devoted to the basic and applied medical sciences and clinical correlation conferences.

(2) Clinical correlation conferences (e.g., a pediatric mortality conference) should be held with clinical services such as internal medicine, surgery, gynecology, radiology, pediatrics, and their subspecialties.

(3) There must be departmental conferences, in which both faculty and residents participate, for detailed discussion of difficult and unusual cases.

(4) Residents must participate in the regular formal clinical and teaching rounds corresponding to the laboratory services to which they are assigned. For example, infectious disease service rounds should be attended during an assignment in microbiology.

f) Consultation

(1) Both faculty and residents must be regularly involved in consultative activity.

(2) Patient-care consultations should be both intra- and interdepartmental.

g) Resident Teaching

(1) Residents should participate in the education of medical students and other trainees.

(2) The effectiveness of residents as teachers should be monitored and evaluated by the program director and teaching staff.

2. Clinical Components

a) The volume and variety of material available in the program for anatomic pathology education must be sufficient to ensure that residents have a broad exposure to both common conditions and unusual entities, and should develop the necessary professional and technical skills to perform the functions of an anatomic pathologist. This experience must emphasize the role of the pathologist as a consultant for effective patient care decisions.

b) While the quality of an educational program is not based upon volume of teaching material alone, programs should have sufficient volume and variety of material available for educational purposes to ensure that all residents:

(1) perform at least 50 autopsies during the program. Each resident must be the primary prosector of 40 autopsies. Further, programs must ensure that residents participate fully in all aspects (including gross and microscopic examinations) of the autopsies they count toward this standard. It is highly desirable that this experience include forensic and stillborn autopsies.

(2) examine and sign out at least 2,000 surgical pathology specimens during the program. This material must be from an adequate mix of cases to ensure exposure to both common and uncommon conditions.

(3) examine at least 1,500 cytologic specimens during the program. This material must include a variety of both exfoliative and aspiration specimens.

(4) perform at least 200 operating room consultations (frozen sections) during the program.

c) The volume and variety of material available in the program for training in clinical pathology should be sufficient to ensure that residents have a broad exposure to both common conditions and unusual entities, and develop the necessary professional and technical skills to perform the functions of a clinical pathologist. This experience must emphasize the role of the pathologist as a consultant for effective patient care decisions.

d) The number and variety of tests performed in the laboratories utilized in the program should be sufficient to give residents experience in the range of tests typically available in a general
hospital. Further, resident experience should be augmented through the use of seminar and course materials and laboratory indexes of unusual cases.

e) While the quality of an educational program is not based upon the volume of teaching material alone, programs should have a laboratory workload that will ensure that all residents gain experience with the full spectrum of clinical pathology procedures.

f) Residents must be considered integral members of the staff of the Department of Pathology, and must have the opportunity to participate in discussion of matters related to management of the Department.

g) There must be periods of time when decision making in the laboratory is the direct responsibility of residents, under appropriate supervision.

C. Residents Scholarly Activities

Each program must provide an opportunity for residents to participate in research or other scholarly activities, and residents must participate actively in such scholarly activities.

1. Throughout their time in the program, residents should be exposed to and encouraged to participate in clinical or laboratory research, research seminars, work-in-progress sessions, and organized reviews of intradepartmental research.

2. Resident involvement in research may be related to methods development, clinical or basic research, or literature surveys, but in all cases the program should provide an environment that promotes research or scholarly activity by residents.

D. ACGME Competencies

The residency program must require that its residents obtain competence in the six areas listed below to the level expected of a new practitioner. Programs must define the specific knowledge, skills, behaviors, and attitudes required and provide educational experiences as needed in order for their residents to demonstrate the following:

1. *Patient care* that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents must demonstrate a satisfactory level of diagnostic competence and the ability to provide appropriate and effective consultation in the context of pathology services.

2. *Medical knowledge* about established and evolving biomedical, clinical, and cognate (eg, epidemiological and social behavioral) sciences and the application of this knowledge to pathology.

3. *Practice-based learning and improvement* that involves investigation and evaluation of their diagnostic and consultative practices, appraisal and assimilation of scientific evidence, and improvements in their patient care practices.

4. *Interpersonal and communication skills* that result in effective information exchange and collaboration with patients, their families, and other health professionals.

5. *Professionalism*, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

6. *Systems-based practice,* as manifested by actions that demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide pathology services that are of optimal value.

VI. Resident Duty Hours and Work Environment

Providing residents with a sound didactic and clinical education must be carefully planned and balanced with concerns for patient safety and resident well-being. Each program must ensure that the learning objectives of the program are not compromised by excessive reliance on residents to fulfill service obligations. Didactic and clinical education must have priority in the allotment of residents' time and energy. Duty hour assignments must recognize that faculty and residents collectively have responsibility for the safety and welfare of patients.

A. Supervision of Residents

1. All patient care must be supervised by qualified faculty. The program director must ensure, direct, and document adequate supervision of residents at all times. Residents must be provided with rapid, reliable systems for communicating with supervising faculty.

2. Faculty schedules must be structured to provide residents with continuous supervision and consultation.

3. Faculty and residents must be educated to recognize the signs of fatigue, and adopt and apply policies to prevent and counteract its potential negative effects.

B. Duty Hours

1. Duty hours are defined as all clinical and academic activities related to the residency program; i.e., patient care (both inpatient and outpatient), administrative duties relative to patient care, the provision for transfer of patient care, time spent in-house during call activities, and scheduled activities such as conferences. Duty hours do *not* include reading and preparation time spent away from the duty site.

2. Duty hours must be limited to 80 hours per week, averaged over a four-week period, inclusive of all in-house call activities.

3. Residents must be provided with 1 day in 7 free from all educational and clinical responsibilities, averaged over a 4-week period, inclusive of call. *One day* is defined as 1 continuous 24-hour period free from all clinical, educational, and administrative duties.

4. Adequate time for rest and personal activities must be provided. This should consist of a 10-hour time period provided between all daily duty periods and after in-house call.

C. On-call Activities

The objective of on-call activities is to provide residents with continuity of patient care experiences throughout a 24-hour period. *In-house call* is defined as those duty hours beyond the normal work day, when residents are required to be immediately available in the assigned institution.

2. In-house call must occur no more frequently than every third night, averaged over a 4-week period.

2. Continuous on-site duty, including in-house call, must not exceed 24 consecutive hours. Residents may remain on duty for up to 6 additional hours to participate in didactic activities, transfer care of patients, conduct outpatient clinics, and maintain continuity of medical and surgical care.

3. No new patients may be accepted after 24 hours of continuous duty.

4. *At-home call* (or *pager call*) is defined as a call taken from outside the assigned institution.

   a) The frequency of at-home call is not subject to the every-third- night limitation. At-home call, however, must not be so frequent as to preclude rest and reasonable

personal time for each resident. Residents taking at-home call must be provided with 1 day in 7 completely free from all educational and clinical responsibilities, averaged over a 4-week period.

b) When residents are called into the hospital from home, the hours residents spend in-house are counted toward the 80-hour limit.

c) The program director and the faculty must monitor the demands of at-home call in their programs, and make scheduling adjustments as necessary to mitigate excessive service demands and/or fatigue.

D. Moonlighting

1. Because residency education is a full-time endeavor, the program director must ensure that moonlighting does not interfere with the ability of the resident to achieve the goals and objectives of the educational program.

2. The program director must comply with the sponsoring institution's written policies and procedures regarding moonlighting, in compliance with the ACGME Institutional Requirements.

3. Any hours a resident works for compensation at the sponsoring institution or any of the sponsor's primary clinical sites must be considered part of the 80-hour weekly limit on duty hours. This refers to the practice of internal moonlighting.

E. Oversight

1. Each program must have written policies and procedures consistent with the Institutional and Program Requirements for resident duty hours and the working environment. These policies must be distributed to the residents and the faculty. Duty hours must be monitored with a frequency sufficient to ensure an appropriate balance between education and service.

2. Back-up support systems must be provided when patient care responsibilities are unusually difficult or prolonged, or if unexpected circumstances create resident fatigue sufficient to jeopardize patient care.

F. Duty Hours Exceptions

An RRC may grant exceptions for up to 10% of the 80-hour limit to individual programs based on a sound educational rationale. Prior permission of the institution's GMEC, however, is required.

VII. Evaluation

A. Resident

1. Formative Evaluation

The faculty must evaluate in a timely manner the residents whom they supervise. In addition, the residency program must demonstrate that it has an effective mechanism for assessing resident performance throughout the program, and for utilizing the results to improve resident performance.

a) Assessment should include the use of methods that produce an accurate assessment of residents' competence in patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.

b) Assessment should include the regular and timely performance feedback to residents that includes at least semiannual written evaluations. Such evaluations are to be communicated to each resident in a timely manner, and maintained in a record that is accessible to each resident.

c) Assessment should include the use of assessment results, including evaluation by faculty, patients, peers, self, and other professional staff, to achieve progressive improvements in residents' competence and performance.

2. Final Evaluation

   The program director must provide a final evaluation for each resident who completes the program. This evaluation must include a review of the resident's performance during the final period of education, and should verify that the resident has demonstrated sufficient professional ability to practice competently and independently. The final evaluation must be part of the resident's permanent record maintained by the institution.

B. Faculty

The performance of the faculty must be evaluated by the program no less frequently than at the midpoint of the accreditation cycle, and again prior to the next site visit. The evaluations should include a review of their teaching abilities, commitment to the educational program, clinical knowledge, and scholarly activities. This evaluation must include annual written confidential evaluations by residents.

C. Program

The educational effectiveness of a program must be evaluated at least annually in a systematic manner.

1. Representative program personnel (i.e., at least the program director, representative faculty, and one resident) must be organized to review program goals and objectives, and the effectiveness with which they are achieved. This group must conduct a formal documented meeting at least annually for this purpose. In the evaluation process, the group must take into consideration written comments from the faculty, the most recent report of the GMEC of the sponsoring institution, and the residents' confidential written evaluations. If deficiencies are found, the group should prepare an explicit plan of action, which should be approved by the faculty and documented in the minutes of the meeting.

2. The program should use resident performance and outcome assessment in its evaluation of the educational effectiveness of the residency program. Performance

of program graduates on the certification examination should be used as one measure of evaluating program effectiveness.

3. The program should maintain a process for using assessment results together with other program evaluation results to improve the residency program.

VIII. Experimentation and Innovation

Since responsible innovation and experimentation are essential to improving professional education, experimental projects along sound educational principles are encouraged. Requests for experimentation or innovative projects that may deviate from the program requirements must be approved in advance by the RRC, and must include the educational rationale and method of evaluation. The sponsoring institution and program are jointly responsible for the quality of education offered to residents for the duration of such a project.

IX. Certification

Residents who plan to seek certification by the American Board of Pathology should communicate with the office of the board regarding the full requirements for certification.

ACGME: February 2001 Effective: July 2002 Editorial Revision: June 2004

ABP PATHOLOGY TRAINING REQUIREMENTS

PATHOLOGY TRAINING REQUIREMENTS

The training in pathology required for eligibility for certification by the American Board of Pathology (ABP) is listed below. The resident is advised to consult the brochure of information published each year by the ABP. This booklet gives the prerequisites and requirements necessary to qualify for the various examinations offered by the Board.

Combined Anatomic and Clinical Pathology (AP/CP) Certification: Four years of full-time, approved training in an accredited AP/CP-4 program, which includes:

- A minimum of 18 months of formal training in anatomic pathology.
- A minimum of 18 months of formal training in clinical pathology.
- An additional 12 months of full-time formal training in anatomic pathology and/or clinical pathology.
  OR
- 12 months of training in other areas of pathology as part of the defined four-year accredited AP/CP training program.

Anatomic Pathology (AP) Certification: There are two approaches to becoming certified in anatomic pathology:

- Three years of full-time, approved training in anatomic pathology in an accredited AP/CP-4 or AP-3 program which includes:

- A minimum of 24 months of formal training in anatomic pathology.
- An additional 12 months of training in anatomic pathology.
  OR
  12 months of training in other areas of pathology as part of the defined three-year accredited AP training program.

- Primary certification in clinical pathology and two full years of full-time, approved training in anatomic pathology in an accredited AP/CP-4 or AP-3 program which includes:
  - A minimum of 18 months formal training in anatomic pathology.
    _ Six months may be full-time, approved training in a subspecialty area of pathology as part of the defined accredited training program.

Clinical Pathology (CP) Certification: As with Anatomic Pathology, there are two approaches to becoming certified in clinical pathology:

- Three years of full-time, approved training in clinical pathology in an accredited AP/CP-4 program which includes:
  - A minimum of 24 months of formal training in clinical pathology.
  - An additional 12 months of training in clinical pathology.
    OR
  - 12 months of training areas of pathology as part of the defined four-year accredited AP/CP training program.
- Primary certification in anatomic pathology and two full years of approved training in clinical pathology in an accredited AP/CP-4 program which includes:
  - A minimum of 18 months of formal training in clinical pathology.
    _ Six months may be full-time, approved training in a subspecialty area of pathology as part of the defined accredited training program.

Advanced Pathology Training Credit Mechanisms:

Advanced credit will not be granted to applicants who began pathology training on or after July 1, 2003. For applicants who began pathology residency training before this date, advanced credit may be given, under special circumstances, by the mechanisms described hereafter.

Advanced credit is any medically relevant, post-baccalaureate, 12-month experience that is not approved by the ACGME for training in pathology and is relevant to the education of pathologists as determined by the ABP. Such training may be applied to satisfy the flexible year in pathology. The acceptance of advanced credits as substitutes for accredited pathology training toward primary certification is not automatic and is evaluated on an individual basis. **Advanced credit is given only for activities that have occurred in either the United States or Canada.** The total combined period of advanced pathology training credit allowed for in paragraphs a and b in this section (III A 2) may not exceed 12 months and can be applied only to the "flexible year" of required pathology training necessary for certification in AP/CP, AP, or CP.

Advanced credit cannot be applied to combined primary and subspecialty certification requirements. (See Section III C, Combined Primary and Subspecialty Certification.) To avoid any misunderstanding, potential applicants should complete at least one full year of training before communicating with the ABP to ascertain

whether credit may be acceptable. In order to determine the amount of advanced credit for which the applicant may be eligible, the applicant should submit to the ABP a written request for the Advanced Credit/Credentialing Requirement Evaluation form. The form must be completed and returned with the appropriate supporting documentation, including a letter of support from the pathology training program director. This letter should include a recommendation as to the amount of credit that the director believes the individual should receive. This recommendation should be made only after the pathology training program director has observed the performance of the applicant. After review of the application, the ABP will notify the applicant and the director of the pathology training program whether or not a recommendation for credit will be made to the Credentials Committee. Before the applicant is determined qualified for examination, the director of the final year of training must certify that the individual is fully qualified to sit for the examination.

If the applicant will be applying for primary certification within 12 months, the Advanced Credit/Credentialing Requirement Evaluation form should not be submitted, as the information requested on this form is also requested on the application for primary certification.

a. For residents entering pathology training programs on or after July 1, 2003, credit for a PhD degree will not be granted.

For residents who entered pathology training programs before this date, the following remains in effect: Applicants holding a PhD degree in a special discipline of pathology or a basic science related to pathology may, under certain circumstances, obtain pathology training credit. The evaluation and granting of the amount of training credit will depend on an assessment by the ABP regarding relevance of the field of study to anatomic pathology or clinical pathology.

b. For residents entering pathology training programs on or after July 1, 2003, the ABP will grant up to 6 months of research credit for primary certification. The research must be done during the pathology training program and with the approval of the pathology training program director.

For residents who entered pathology training programs before July 1, 2003, the following remains in effect: Research with a direct application to the practice of anatomic pathology or clinical pathology and not leading to an advanced degree may be considered for credit **not to exceed** 12 months in combination with other advanced credits. The research must be full-time, and the applicant must be able to demonstrate active participation in the generation of the hypothesis and development of the protocol. No credit is given for research employment as a technician or technologist.

Post-Pathology-Course Fellowships:

For students entering post-pathology-course fellowships on or after July 1, 2003, credit for successful completion of such programs will not be granted.

Prior to July 1, 2003, the following remains in effect: Under certain circumstances, applicants may receive advanced pathology training credit toward the primary certification requirements for post-pathology-course fellowship training or research in pathology. **Such credit is NOT given toward the requirements for subspecialty certification or combined primary/subspecialty certification.** Credit is assessed on an individual basis and may be applied only to the "flexible year" of required primary training. Credit may not be applied to the required 18 months of structured anatomic pathology training or the required 18 months of structured clinical pathology training necessary to qualify for combined anatomic and clinical pathology certification.

Advanced credit toward single certification in anatomic pathology or single certification in clinical pathology will be applied to the "flexible year" of required pathology training only and not to the 24 months of required structured training.

A separate application for advanced credit for post-sophomore fellowship training is not necessary, provided the following guidelines are met:

a. The fellowship program must be approved by the ABP.

b. The fellow fully and satisfactorily completed the medical school year in which the pathology course was taught prior to enrolling in the program.

c. The fellow did not receive credit (elective or required) toward the requirements for graduation from medical school for the pathology fellowship activities.

d. Training was full-time in a department of pathology with a fully accredited pathology training program.

e. Training has been validated by the director of the student fellowship program and is approved as an acceptable experience by the director of the accredited pathology training program in which the applicant is registered.

f. Training was under the direction of the director of the pathology training program or the chair of the department of pathology.

g. A description of proposed activities, responsibilities, and assignments for anatomic pathology, clinical pathology, and research was available and on file with the ABP prior to the beginning of the fellowship. If a formal institutional program exists, a copy should be filed with the ABP.

h. A validation and evaluation report was submitted to the ABP on completion of the fellowship by the pathology training program director or chair of the department of pathology.

SCHEDULED EXAMINATIONS IN ANATOMIC AND CLINICAL PATHOLOGY

The Fall 2009 primary examinations will begin on Monday, October 12, 2009, and will continue until all qualified, registered candidates have been examined. Individuals applying for the Fall primary certification examinations must complete their training by November 1 of the year of application.

The Spring 2010 primary examinations will begin on Monday, May 17, 2010, and will continue until all qualified, registered candidates have been examined. Individuals applying for the Spring primary certification examinations must complete their training by July 1 of the year of application.

The Fall 2010 primary examinations will begin on Monday, October 11, 2010, and will continue until all qualified, registered candidates have been examined. Individuals applying for the Fall primary certification examinations must complete their training by November 1 of the year of application.

The ABP web site is http://www.abpath.org. Address all communications to:

The American Board of Pathology
P.O. Box 25915
Tampa, FL 33622-5915
Phone: (813) 286-2444 Fax: (813) 289-5279

PROMOTION, PROBATION AND DISMISSAL:

Policies and procedures regarding academic promotion, probation, and dismissal are printed in the *Housestaff Handbook* published by the Office of Graduate Medical Education (Room 1814 UH) as well as in the front of the Residency Manual.